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Charles D. Cory

THE AUK:

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IN MEMORIAM: CHARLES BARNEY CORY.

BORN JANUARY 31, 1857—DIED JULY 31, 1921.

BY WILFRED H. OSGOOD.

Plate IV.

YEAR by year the number of surviving founders of the American Ornithologists' Union is being reduced until one feels the pressure of coming time when it will be a distinction even to have known them. To those of another generation, their gradual passing has a peculiar sadness and a grim significance, which bring a realization that not only they themselves but the pioneer days in which they moved are gone forever. Their names and their works stand monumentally and their personal memories will linger long, but no one can ever replace them because they and their times are inextricably linked together.

In the death of Charles B. Cory during the past year, we have lost another pioneer and one who will be remembered not only as a productive ornithologist, but also as a man of great individuality and almost picturesque character. Mr. Cory was born in Boston January 31, 1857. His birthplace was a house built by his father at 1225 Washington St., facing the Catholic Cathedral on the site later occupied by the Arlington Hotel. On his father's side, he came of sturdy old New England sea-faring stock—son of Barney Cory, grandson of Nathaniel B. Cory and great-grandson of Philip Cory, whose grandfather came to America in the first

half of the seventeenth century and settled in Rhode Island. His grandmother, on his father's side, was Meribah Gardiner who was directly descended from George Soule, reputed to have reached Massachusetts in 1620. One of Mr. Cory's possessions at the time of his death was an old-fashioned mirror which belonged to Soule and had been passed down directly. His mother was Eliza Ann Bell (Glynn) Cory of Newport, Rhode Island.

His father, Barney Cory, beginning as an apprentice at the age of fourteen in the firm of J. D. & M. Williams of Boston, soon became a partner in a large importing business, dealing principally in fine wines, silks, and luxuries, and amassed what for the times was a very large fortune. Young Cory, therefore, came into the world with the proverbial silver spoon in his mouth. He had no brothers and but one sister who reached maturity so his early life was doubtless that of a favored child where to wish was to have. At the age of eight or nine he was sent to a private school on Park St., Boston, called Park Latin School. Later he went to William Eayr's School on Tremont St., and it was there that he was prepared for college. In 1870, his father built a very large house at 8 Arlington St., Boston, and the family removed there. This was Cory's home until 1892, when he sold it ten years after he had come into full possession of it through the death of his parents. At the present time, this house still stands and all, or part of it, is occupied by offices of the 'Atlantic Monthly.'

The boy Cory showed a decided interest in outdoor sports and in animal life. When only eleven, it is related that he saved money and secretly bought a pistol with which he and another youngster attempted to shoot some birds. His father encouraged his desires and had him expertly instructed in shooting, boxing, fencing, riding, and general athletics. At the age of sixteen, he made what might be called his first expedition, a hunting and fishing trip to the Maine woods with a young friend named Bicknell. This evidently fixed his interest in natural history, for within a year he had actively begun the formation of a collection of bird skins. This was in 1874, the year following the formal organization of the Nuttall Ornithological Club, which Cory joined in February 1876, and in which he made the acquaintance of William

Brewster, Henry Henshaw, and Ruthven Deane, all of whom were senior to him by six or seven years.

In 1875, although only eighteen years of age, he took his mother on a foreign tour on which they saw the usual sights in England, France, and Italy. In Florence, Italy, plans were made for a trip to Egypt, and just before starting, while pitching pennies to beggars in the Arno, Cory made the acquaintance of another young American, Martin Ryerson by name. Later, finding themselves on the same steamer bound for Alexandria, the two formed a lasting friendship. Together they organized an expedition by dahabeeya down the Nile, where they did considerable shooting and Cory made important additions to his collection of birds. His mother accompanied them on this trip, which was fraught with adventure, Egypt being in an unsettled state at the time. About a year later, on August 30, 1876, Cory and Ryerson went to Harvard together and were roommates there, occupying suite 32 in Beck Hall. Mr. Ryerson afterwards became one of America's most useful and influential citizens. He is now President of the Board of Trustees of the University of Chicago, First Vice-President of the Trustees of the Field Museum of Natural History, and a trustee of the Carnegie Institution of Washington, while he holds many other positions of responsibility and trust.

Cory entered the Lawrence Scientific School of Harvard, and while there had the advantage of working at the Museum of Comparative Zoology, where Dr. J. A. Allen was then Curator of Mammals and Birds. His college work was somewhat interrupted by periods of travel and short absences and it is evident that here as elsewhere he followed his bent without regard to rules and regulations. Although he did not continue at Harvard until graduation, his studies there, pursued along the lines which most interested him, covered a considerable proportion of the requirements. The fall of 1878 found him entered at the Boston Law School, but his studies here were pursued only a few months. At this time he was interested in many things besides ornithology, notably athletics and other sports, but his bird-collecting was never forgotten and was pursued in conjunction with many other activities. As amply evidenced later, it was always his paramount interest.

In November 1877, during his college days, a slight indisposition, probably plus a desire for an outing with the birds, caused him to run down to Florida, where he knocked about with a friend until January 1878. During this time he wrote a small book called 'Southern Rambles,' a sort of diary of the trip written in nonsense style. It was published by A. Williams & Company of Boston in 1881, and, although other titles appeared meanwhile, was really his first literary effort. With this trip to Florida in 1877 when twenty years of age, Cory began a life of freedom and pleasure in the pursuit of natural history and sport which has scarcely been equalled and which might well be the envy of many a man. For nearly thirty years he made trip after trip, collecting birds, hunting and fishing, and pursuing various hobbies and sports. With ample allowances from his father, he spent money freely and doubtless foresaw no future in which money ever would be a problem. His expeditions as a rule were not very lengthy and were alternated with periods at the home in Boston.

In 1878, he spent the months of July and August on the Magdalen Islands in the Gulf of St. Lawrence, and the following autumn, while playing at the study of law, wrote the book 'A Naturalist in the Magdalen Islands.' In December of the same year he started for the Bahama Islands, taking with him, as became his custom on later trips, a friend, who sometimes acted as secretary, and also a taxidermist, in this case Arthur Smith, who accompanied him on several other occasions. They remained until July 1879, and six months later the well known book 'Birds of the Bahamas' was written and published.

In 1880, he again went to Europe, this time mainly to visit ornithologists and to purchase books and specimens. In England he met Slater, Seebohm, Salvin, Godman, Porter and others. In France, Boucard and Sallé were among those with whom he fraternized. Returning to the United States, he began immediately to plan to follow up his work in the Bahamas with more in the West Indies, and on February 4, 1881, he sailed for Haiti, remaining there only a short time as a guest of the then president, but making important collections and laying foundations for the later work which made his collection of West Indian birds the best in existence and himself the leading authority in that field.

On August 18, 1882, his father died, and later his mother and his sister Jennie Louise (Cory) Tyler having also passed away, the entire estate came into his hands, making him, if not quite, then very nearly a millionaire, in a day when millionaires were far less numerous than they are now. Aside from the bereavement and the added responsibility, however, this made little difference to him, for his father had always liberally supplied him with money. His friends were naturally among men of large means and he moved in a circle which included some of the wealthiest men in America at that time.

He was married May 31, 1883, to Harriet W. Peterson, daughter of the Hon. Josiah Peterson of Duxbury, Mass., and a woman of fine character and much charm. Thereafter his wife accompanied him on many of his shooting and collecting trips and entered with spirit into the life he loved. In later years her loyalty and devotion were a source of strength to him in many trying times. Two children were born to them, a daughter, Marion, who died in childhood, and a son, Charles B. Cory, Jr., now 30 years of age and successfully engaged in advertising work in Chicago. Shortly after his marriage he built his summer place on a thousand acre estate near Hyannis, Mass., on Nantucket Sound, where he had a large game park in which he kept elk, deer, antelopes, pheasants and other animals. Here he protected non-game birds and made what was one of the first (if, not the very first,) bird sanctuaries in America.

When the American Ornithologists' Union was organized in 1883, Cory was one of the noted company who attended the original meeting in New York and earned the title of founder. He almost immediately became a life member. In 1886 and 1887 he was Treasurer of the Union; in 1888 and again in 1896, he was a Councillor; in 1898 he was made Vice President and continued in that office until November 1903, when he became President of the Union, serving until November 1905. He had been a frequent contributor to the 'Bulletin of the Nuttall Club' and although much of his work appeared in book form, he wrote numerous short papers, descriptions of new species, and notes for 'The Auk.'

In the fall of 1884, he went to Dakota and Montana shooting ducks and geese with his friends Martin Ryerson and Charles R.

Crane, and the following winter he rediscovered Florida, fell thoroughly in love with it and adopted it as his own. For the next twenty years without a break he spent all or part of every winter in this state. As a field for collecting birds, for shooting and fishing, for the sports and social activities of which he was fond, and as a point of departure for Cuba and other islands of the West Indies, it seemed made to his order. Florida suited him exactly and likewise he suited Florida. He traveled through it from end to end, he camped in the Everglades, he boated on the lakes and streams, he yachted on the coasts, and he luxuriated at the resorts. He was known to everyone who went to Palm Beach and throughout the state his name was almost as familiar as that of Henry M. Flagler. One of his hobbies was a small museum called The Florida Museum of Natural History, which he established at Palm Beach and in which he brought together a good representation of the fauna of the state, including a large variety of birds and most of the important mammals, reptiles, and fishes. He employed a taxidermist and caretaker and the place became one of the attractions of the resort. About 1903 it was destroyed by fire and only a few of the specimens, some of which constituted valuable records, were saved. This misfortune was always a matter of very great regret to him and in after years he would frequently mention particular species of which he had been especially proud—rarities or specimens procured by his own hand after great difficulty. In Florida he often invited friends from the north for short excursions or shooting trips. Among those so entertained were Martin Ryerson, William Brewster, Charles R. Crane, Joseph Jefferson and Admiral George Dewey. In January 1888, he encountered in his precincts a young man named Frank Chapman whom he found receptive and apt regarding many things, ornithological and otherwise, in which he was interested. An enduring friendship, therefore, was begun with another ornithologist.

Although never missing his annual visit to Florida and usually spending at least a part of his summers at Hyannis and Great Island in Massachusetts, he was on the move much of the time. In 1886, he made a short trip to Cuba, where he met the Cuban naturalist, Dr. Gundlach. In 1887, he went to Mexico and the

southwestern United States and later in the same year to eastern Canada. In 1888, big game shooting in Alberta occupied him for a few weeks. In July 1889, he again went to Europe and attended an International Congress of Zoology, meeting the French ornithologists Oustalet and Milne-Edwards and in England Alfred Newton and Bowdler Sharpe, spending considerable time with the latter. In 1891, he cruised about the West Indies, visiting Cuba, the Bahamas, and various small islands. In 1892, he was again in Cuba.

During all this time he employed collectors who accompanied him and who also worked independently. One of the best of these was Daniel J. Sweeting who worked especially in the Bahamas. The collection of birds was growing rapidly and in 1892 numbered nearly 19,000 specimens, occupying three rooms in the upper story of the large house on Arlington St., Boston. As collections came in they were rapidly worked up, many new species were described, and from time to time books were published. Thus, 'The Beautiful and Curious Birds of the World,' a folio with colored plates, appeared in 1883. One of the plates in this work was of the Great Auk and furnished the original of the engraving which for many years appeared on the cover and title page of 'The Auk.' 'The Birds of Haiti and San Domingo' came out in 1885; the first 'List of the Birds of the West Indies' in 1885-6; and the completed work on 'The Birds of the West Indies' in 1889.

In December 1887, Mr. Cory had been elected Curator of Birds in the Boston Society of Natural History. This was largely an honorary position with few obligations and was held by him until 1905. When the Arlington St. house was sold in 1892 the collection of birds had been removed to the museum of the Boston Society but was not destined to remain there but to pass to a new institution in the West. At the close of the Worlds Fair in Chicago in 1893, the Field Museum of Natural History, or, as it was then called, the Field Columbian Museum, was established. The President of the new institution was Mr. Edward E. Ayer and among its trustees were several of Cory's boyhood friends and business associates. These men knew of his ornithological interests and his large collection of birds. Therefore arrangements were

made by which his birds should form the foundation of the new museum's reference collections and by which he should become the Curator of Ornithology. At this time Cory was quite independent of position and did not wish to be tied to the routine of curatorial duties. Evidently the museum had contemplated an organization in which ornithology should be a division of a department of zoology. To secure his collection of birds and to conform to his wishes, however, an independent Department of Ornithology was established with Cory as curator without residence obligations. The remaining branches of zoology were included in a "Department of Zoology, except Ornithology" in charge of D. G. Elliot. Cory was thus in effect an honorary curator and he so-called himself, but officially he was never so designated by the Museum. By agreement with the Museum, it was settled that he should hold this position during his lifetime. This agreement pleased Mr. Cory greatly since it gave him some distinction, enabled him to continue enlarging his collection without being burdened with petty details of its care, and offered no serious interference with the almost nomadic life he was leading.

Mr. George K. Cherrie was employed as Assistant Curator of Ornithology and in the fall of 1894, was despatched to San Domingo where he secured large additions to the already unrivalled collection of West Indian birds. Mr. Cherrie continued as assistant until 1897 and was succeeded in 1898 by Mr. W. A. Bryan. Later there were a few years without a regular assistant until 1904 when Dr. Ned Dearborn was appointed. During this period and until 1906, Cory visited the Museum one or more times annually, made recommendations of a general nature, and then returned to Massachusetts. His own idea of his relation to the institution is very clearly expressed in a notation by himself found in his personal records. This is as follows, under date February 6, 1894:

"Signed an agreement selling my collection and working library only, now in Boston Society Natural History Museum in Boston, to the Field Columbian Museum in Chicago, and have accepted the position of Curator of Ornithology in the museum which is a high, compliment. I am at liberty to work as much or little as I please, but must direct the general government of the collection."

During this period of absentee curatorship, one of Mr. Cory's

activities was the publication of a number of popular books. Beginning with a new edition of his 'Hunting and Fishing in Florida,' issued in attractive and well illustrated form in 1896, there followed a series of handy manuals for the identification of birds. The first of these was called 'Key to the Water Birds of Florida' and appeared in 1896. This was followed in 1897 by 'How to Know the Ducks, Geese and Swans' and 'How to Know the Shorebirds.' These came out in paper covers for a small price and had a considerable sale among sportsmen rather than ornithologists, but they attracted the attention of ornithologists owing to the ingenious way in which their purpose was achieved. At this time, Coues' 'Key' and Ridgway's 'Manual' were still in vogue and the numerous pocket keys and other convenient aids for the novice which we now have were unheard of. Cory's keys were illustrated keys, dichotomous and brief, but with a woodcut of a head, a foot, or other unmistakable part of each species set into the text. Apparently they were original with him and they are to this day about as near foolproof as anything that has been devised for the identification of birds. As a culmination of the series, a key to 'The Birds of Eastern North America' in two parts was prepared and published in 1899 and 1900 in two editions, one by a Boston publisher for general sale and a special one by the Field Museum for distribution to its mailing list. This was the first important publication of Cory's authorship to be issued under the imprint of the Field Museum.

A few years later, in 1906, a crisis came in Mr. Cory's life. This was nothing less than the complete loss of his fortune. The ruin was practically unmitigated and took all his property save personal effects, reducing him in a few months from a man with the income of a millionaire to one required to earn the daily bread of himself and family, and he a man in middle age who had never earned a dollar in his life. The cause of the crash is of little importance now, but it may be said that it was principally due to heavy speculation in the so-called securities of the famous "shipping trust" and "sugar trust," speculations to which he had been induced through the advice of men much wealthier than himself and upon whom he depended to carry him through. This they could not or would not do and, since another of his properties

collapsed at the same time, the settlement of his obligations was quite beyond his means. Samuel Butler it is, I think, who somewhere says that the one thing from which no man recovers is the loss of his fortune. That Mr. Cory never recovered was evident to his close friends, but if he was inwardly embittered and broken in spirit, it was usually well concealed. His sense of humor never left him and he made a brave fight to the end, ornithology proving to be at once his salvation and his refuge. From a roving amateur he became a diligent professional. His position with the Field Museum was purely honorary and carried no salary. A salary had become a necessity and so a salaried position was provided for him at the Museum, that of Curator of Zoology. At the age of fifty he removed with his family to a small house in Chicago, renounced most of his former friends and associates, and settled down to a life of routine utterly different from the one he had been leading. His favorite recreation, the game of golf, was still possible to him and, although he was obliged to play at a small and inexpensive club, he continued to get much enjoyment from it. In later years, through infirmity, even this was denied him.

For fifteen years he came regularly to his desk at the Museum and worked diligently in the study of birds and in the preparation of ornithological books. Details of the work in the several divisions of his department were left largely to the assistants in charge. Far from being domineering or wilfully meddling, he seldom took the initiative and with few exceptions the men subordinate to him were treated with the utmost consideration. He immediately began the preparation of a book on 'The Birds of Illinois and Wisconsin, which the Museum published in 1909, a large well illustrated volume of 750 pages. Meanwhile his assistants Ned Dearborn and John Ferry were sent to collect birds in Central and South America and especially on islands of the Caribbean Sea from which collections would supplement the large West Indian collection of the Museum. Following the work on the birds, he produced a similar one on the 'Mammals of Illinois and Wisconsin,' a volume of 492 pages published by the Museum. This was done to a certain extent as an answer to unwarranted criticism intimating that he was solely an ornithologist without knowledge of other branches of zoology. It was an excellent piece of work, well

illustrated with maps, line drawings, and photographs, provided with keys for identification, bibliography, and glossary. Although largely a compilation, it contained many original notes on the habits of species known to him in former years. It is today one of the best works yet produced on the mammalogy of a political division of the United States. Such assistance as he received from professional mammalogists was largely general or advisory and the work therefore was entirely his own production.

Upon my own association with the Field Museum in 1909, Mr. Cory entered heartily into plans for continuous study of the fauna of South America and, although nominally subordinate to him, I was given a free hand in the employment of men and in the planning and conduct of expeditions. In the field work which followed in Central America, Venezuela, Colombia, Peru, and Brazil, my recommendations were invariably approved by him, his only request being that birds should constitute a fair share of the collections made. During the next few years, in which quantities of fresh South American material were being received at the Museum, he occupied himself with the description of new species and in reorganizing voluminous bibliographic matter accumulated in previous years. This led to the conception of his last and most ambitious work, 'The Birds of the Americas,' and when, through embarrassment of the Museum's finances in 1913, field work in South America was discontinued, he was already becoming so engrossed in the compilation of this great work that he was less disturbed and disappointed than might have been expected. The amount of labor which he expended in preliminary work for this series was prodigious and when it came to the actual production of the first volume he left no stone unturned in order to make it as nearly complete and reliable as possible, at least up to the point of going to press. He corresponded with many ornithologists in this country and abroad concerning particular points, he followed up each case to the end, often personally paying for transcription and translation of matter in books not to be found in Chicago libraries. One thing he would not do, and that was the reading of his own proof carefully page by page. This was not on account of inability on his part, for as amply shown in other connections, he was, if he chose to be, a master of detail and a

marvel of accuracy. But proof reading he looked upon as drudgery and, doubtless through habits formed in earlier life when he was able to hire the best of assistance, he regarded a book finished when the manuscript went to the printer. Consequently 'The Birds of the Americas' and some of his other books were marred by typographical errors the number and importance of which varied according to the competence or incompetence of the clerks who happened to be in his employ when they were issued. Preparing the manuscripts, however, was another matter and this he did most scrupulously all in his own hand. The first part of 'The Birds of the Americas' appeared in 1918 and the second in December 1919. The third part was ready for the printer shortly before Mr. Cory's death and the manuscript of a fourth was approaching completion. His devotion to this work during his last days was most pathetic. In November 1920, he was stricken with a partial paralysis which left him able to move about and sit at his desk in his own home but unable to go to his office in the Museum. For the next eight months, although it was evident to his family and close associates that the end might come at any time, he himself showed no signs of any such belief and continued hopefully insisting that he could recover at least sufficiently to finish his book. The book and ornithological matters were uppermost in his mind and furnished almost the only subjects upon which he would talk to his Museum associates who visited him in these days. Specimens and books were taken from the Museum to his house and each day he put in a short time working or trying to work on the manuscript of the book. In July 1921, he went to a resort where cool weather might be expected and near there in a hospital in Ashland, Wisconsin, he died on July 31, after an acute illness of only a short time.

In the foregoing account of his life, his interest in ornithology has been dwelt upon especially. To understand him it was necessary to know his whole history. Ornithology was to him only one of the numerous sports which life afforded. It was all play to him and no one played with greater zest than he. His friends among ornithologists were few. For Brewster and Ridgway and Chapman he seemed to have a real affection and toward all the bird men of his own generation he was fraternally inclined, but for most of

his life his personal associates were not ornithologists. His contributions to ornithology are large. His bibliography, not yet compiled, includes well over 100 titles many representing books of considerable size. He discovered and described many new species and subspecies of birds and was directly or indirectly responsible for a large amount of exploration. At least seven species of birds were named in his honor and two, Cory's Least Bittern and Cory's Shearwater, bear his name although having technical names not referring to him. One large mammal, the Florida cougar (*Felis coryi*), was named in his honor.

To those who knew him, perhaps the characteristic that will be recalled most was his great capacity for discovering the humorous side of every situation. My first meeting with him was the occasion for him to relate some amusing stories in his office at the Field Museum and when I last saw him a few weeks before his death he even joked about his own pitiable condition. A good story was his delight and he never missed an opportunity to tell or to hear one. He was always fond of writing stories and clever doggerel for circulation among friends. In the small circle of ornithologists who from time to time sent out round robin jokes directed at each other's foibles he was usually to be counted on for an amusing contribution. Once Robert Ridgway sent him a fabricated composite specimen saying that he was about to name it in his honor as a new species. Cory, seeing a chance to turn the joke back, immediately telegraphed that he was greatly pleased, that he had prepared a colored plate of the specimen which he would have published at once with Ridgway as authority, and that he was sailing that day for the West Indies and thence-forth would be out of communication. His sense of the ridiculous, fondness for stories and a large human sympathy were expressed in several non-ornithological books, one of which was called 'Doctor Wandermann' and another was an interesting collection of short stories issued under the title 'Montezuma's Castle and Other Wierd Tales.' Among the unpublished manuscripts left by him are two nonsense books prepared and illustrated with considerable care in the hope that they might produce some much needed addition to his income. One of these was called 'Tales of a Nature Faker' and included some very clever items.

No account of Mr. Cory's life would be complete or fair which did not record his prowess in athletic sports and his love of games of all sorts. Most of his friends among ornithologists knew he had some reputation as a golf player, but probably very few of them realized how skillful he really was at this difficult game, or how he excelled in various other games and in other activities outside of ornithology. His interest in these things is not only a matter of record, but it is very important in estimating the character of the man. They were all games of skill and games in which supremacy was most severely contested. They required great physical control, accuracy, judgment and generalship. He played them all to win, he studied them from every angle, analyzed their every feature, concentrated on them, and never ceased until he excelled. This meant nothing less than hard work, very hard work, and a great deal of it. Incessant study and practice are necessary in making champions and without them native gifts cannot be developed.

As a boy, like most boys in Boston, he took up baseball, played a great deal, and was one of the first in the country to pitch the so-called curve ball. Next he became interested in shooting, especially pistol shooting, and became one of the best pistol shots in the United States. It is related by a friend, who was once his guest in Florida and who innocently proposed some pistol shooting to while away an hour, that Cory suggested a visiting card as a mark. To this the guest agreed but when actual preparation began he was aghast to find that Cory intended shooting at the edge of the card instead of its face. While still in college he began playing billiards and became so expert that the attendant notoriety was distasteful and when he won the billiard championship of the state of Massachusetts he did it under an assumed name. Later while in Europe, he once met the billiard champion of Belgium in a friendly match and defeated him. At one time he was interested in whist and played with some of the best players of that period.

He began playing golf in 1897, being one of the first to take up the game in America. From that time until 1915, golf was his principal recreation. At the Great Island Club in Massachusetts, of which he was the principal founder, he laid out what was practi-

cally a private golf course. In 1902, he won the North and South championship at Pinehurst, North Carolina. Later he was champion of Massachusetts, champion of Florida, and winner of many special events for which he received more than 100 prizes including no less than 75 silver cups. He wrote occasional articles for golfing magazines, he designed several special golf clubs, he invented and patented an apparatus for playing indoor golf, and his exhaustive knowledge of the game, its history, personnel, and everything pertaining to it was a marvel to the younger golfers with whom he came in contact in his later years.

For a number of years he was much interested in music. He had a good baritone voice and sang a great deal although seldom in public. He founded the Boston Glee Club and helped it along not only by his own voice and membership but by money contributions. He wrote the words for several light operas and one of these, called 'The Corsair,' was produced in Boston for the benefit of the Marine Biological Laboratory of Woods Hole. He also wrote the words for 'A Dream,' a very popular song often sung by prominent vocalists, including the late Enrico Caruso. Another subject to which he devoted considerable time was psychic research. In 1888 he was made chairman of a committee on hypnotism in the American Society for Psychical Research and he published two small treatises entitled 'Hypnotism or Mesmerism' and 'The Therapeutic Value of Hypnotism.' In this connection he spent much time and money in exposing tricksters both in this country and abroad. He never was able to believe that communication with the dead was humanly possible and he freely scoffed at theories involving such belief.

Despite the number and variety of the activities in which he zealously engaged, there was never a time when ornithology was crowded out and there can be no doubt that from end to end his greatest devotion was to the study of birds. As a boy in his teens he began to contribute to the literature of birds and until the day of his death he was a productive worker in the field of taxonomic and geographic ornithology. In later years, aside from incidents of failing health, the conditions under which he worked were such as to have discouraged a less determined man. The diligence and tenacity of purpose with which he pursued the tremendous

task of preparing his last book was truly remarkable. It has been said that ornithology to him was a game—the greatest and best game he played. If so, he played it like other games, to win, and none knew better than he that winners never quit.

Field Museum of Nat. Hist., Chicago.

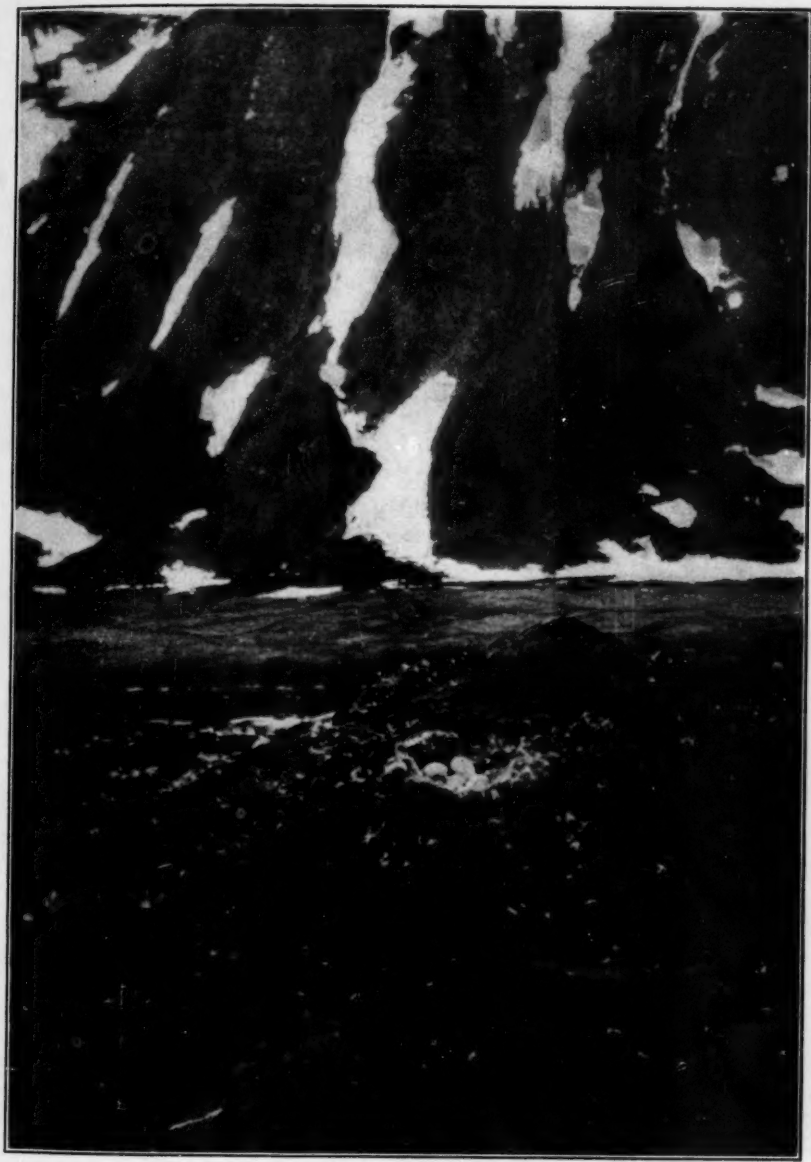
THE BREEDING HABITS OF THE BARNACLE GOOSE.

BY F. C. R. JOURDAIN, M. A., M. B. O. U., C. F. A. O. U.

Plate V.

UNTIL the season of 1921, all that was definitely known of the breeding of the Barnacle Goose, (*Branta leucopsis* (Bechst.)), was due to the efforts of two ornithological workers, Dr. Alexander Koenig of Bonn, Germany, and Mr. A. L. Y. Manniche of Denmark. The few earlier breeding records are all of a more or less doubtful character. In 1858 a Goose and a nest of eggs were brought to the Swedish Expedition under Nordenskiöld by the harpooner of a sealing sloop from some locality near Bell Sound, Spitsbergen, but it is by no means certain that the bird was shot from the eggs and probably the eggs were found on one of the islets in the bay and belonged to *Branta b. bernicla*. A supposed case of breeding on the Lofoden Isles, Norway, in 1870–1872, was reported by Collett, but the eggs are remarkably small for this species, and the locality lies far outside the normal breeding range, so that even if no mistake was made, probably one of the birds was prevented from migrating by some injury. A nest with eggs from which the gander was shot is said to have been found by Nathorst and DeGeer in 1882 in Bell Sound, Spitsbergen, but here again there are discrepancies in the various accounts, Lieutenant Stjernspetz informing Mr. A. H. Cocks that three young were taken. In 1913, Mr. H. Noble was shown a clutch of five eggs and down which were said to have been taken in Iceland in 1912 (cf. *British Birds* (Mag.) X, p. 181).

The first really authentic information on the subject however, comes from Dr. Koenig, who gives full details of his discovery in his 'Avifauna Spitzbergensis,' p. 222–226. On June 29, 1907, he found a small breeding colony in one of the side valleys leading



NEST AND EGGS OF THE BARNACLE GOOSE.



into Advent Bay, and on the following day obtained two clutches of five and four eggs respectively, besides shooting three males and two females. In 1908 he returned to the same spot, but though about eight pairs were breeding in the valley, only one nest proved to be accessible, which contained three incubated eggs on June 15. These twelve eggs, still in Dr. Koenig's fine collection at Bonn, remained the only authentic specimens taken from wild birds until 1921. Perhaps the most curious feature about these nests which has no doubt been the principal factor in preserving them from molestation, was their unusual position. In Spitsbergen it is not uncommon to find outcrops of rock occurring at intervals along the sides of valleys, and although undergoing a slow process of disintegration, and split by frost, they still stand out from the steep hillsides in great masses, often with perpendicular sides, leading down to a talus of broken rocks below. Here it is, on these "bastions" as Koenig aptly terms them, that the Barnacle Goose elects to breed. Sometimes the nest may be found on a mossy ledge at the foot of a steep crag, with a drop of fifteen to twenty or thirty feet below. At other times a narrow rock spur, projecting out into the valley from the hillside is chosen, while in some cases birds have been seen incubating their eggs at the top of some rock pinnacle or in a hollow in the face of an overhung cliff.

In 1910, Mr. A. L. V. Manniche, who accompanied the Danish Expedition to Northeast Greenland in 1906-1908, published his ornithological and other notes in the 'Meddelelser om Grönland.' Bd. XLV. Here he describes how in June 1908, he discovered a great breeding colony on the steep face of a mountain over 1100 feet high. The birds were breeding on ledges on the upper half of a great cliff, and even at a distance of three-quarters of a mile, the noise of their notes was distinctly audible. Manniche estimated the number of breeding birds at about 150. Unfortunately he was unable to reach the nesting places or even to ascertain with certainty whether they had actually begun to breed. An interesting feature of this colony was the presence of an eyrie of Greenland Falcons among the geese.

The spring of 1921, when the Oxford University Expedition visited Spitsbergen, was a remarkably open one, and there was very much less snow than in normal years. We were, however,

rather later than we had expected to be in reaching Advent Bay and it was about 11 P. M. on the night of June 25 that a small party, consisting of Messrs. A. H. Paget Wilkes, S. Gordon and myself, set out to work one of the valleys leading down to the bay. The sun was still shining and the weather still and fine as we made our way along the side of the desolate looking valley, on the opposite side of which many snow wreaths still lay. A succession of gray bluffs half way up the long slope of the mountain side looked promising and we slowly toiled over the loose talus towards them, scanning the crags closely with the glasses in the hope of seeing the white face of the setting bird or her mate. We had not gone very far before a goose appeared flying down the valley towards us and was presently joined by a second, which must have come from one of the bluffs. Both birds seemed anxious and uttered a cackling note, and as they came near we recognized the boldly contrasting black and white plumage and the characteristic white face of the Barnacle Goose. Round they went away again up the valley, one bird finally settling on the top of a big rocky bastion. This was most encouraging, and once more the glasses were turned on the rocks ahead of us. Half way up a steep rock face perhaps a kilometre ahead there was a white speck, and as the glasses were directed to it, it seemed to move. The exact spot was hurriedly pointed out to the others and Mr. Wilkes at once set off towards it. As he gradually came nearer first the gander and then the goose left the bluff but the latter was most unwilling to desert her highly incubated eggs and sat with outstretched neck till at last her fears got the better of her. The nest contained five eggs and a plentiful supply of down and feathers, as well as a good many droppings. It was not particularly difficult to reach from above, and a short scramble was all that was needed before the eggs and down were in the collector's hands. Time was pressing as we had arranged for our ship to leave at midnight, but fortunately before turning back Mr. Wilkes decided to try another bluff still further up the valley. Here on a projecting spur of rock jutting out over the valley, some hundreds of feet below was a second nest containing four eggs in a neat down-lined hollow. Flakes of down were scattered over the rocks, while numerous droppings marked the place where the gander kept watch beside

his mate. The accompanying photograph (Plate V) is curiously deceptive. The high walls of the opposite side of the valley and the snow drifts in the gullies come out clearly and the marshy flats at the foot of the valley can also be well seen, but the rocky spur in the foreground, on which the nest is situated, might well be only a few feet above the flats below, instead of being two hundred feet or so above them.

A second visit a few days later was even more successful. On this occasion no fewer than three nests were taken, containing five, five, and three eggs respectively. All three clutches were highly incubated and many hours of painstaking toil were spent before the last bone was safely extracted. Besides these nests, there was also another breeding place in a small cave in the face of an overhung and very rotten cliff, which could only have been reached at the expense of much time and considerable risk. High up above us was a great cliff face, and here I plainly saw a goose stand up for a minute or two and then disappear again on to a ledge. Another bird settled on a mushroom shaped pinnacle of rock on which her head could just be seen silhouetted against the sky, where she is probably safe against all comers for many years to come.

It is evident that the habit of nesting on cliff faces has been adopted by the Barnacle Goose and to some extent also by the Pink-footed Goose—as a protection against the attacks of the Artic Fox. Many of the nests must be quite inaccessible, while in other cases, the mammal is at a very great disadvantage on a ledge with a drop of anything from fifteen to fifty feet below and a couple of angry geese, as much at home in the air as on land. Unlike the ducks, the Anseres have a high standard of duty on the part of the husband. Although the male takes no share in incubation, and incubation patches are only found in the females, the males spend most of their time on sentry duty beside their mates. Not only is the gander always on the watch and ready to give the alarm, but he is also prepared to take his share in defence if any occasion should arise. In every case where we found geese breeding in Spitsbergen, whether Pink-footed, Brent or Barnacle, the male bird was standing by the side of his mate. There is, however, one disadvantage of the cliff nesting habit, which would seem at first to offer almost insuperable objections. The

young of most cliff breeders remain in the nest till they have acquired the power of flight, while the young geese on the other hand are vegetable feeders and can pick up their own living almost as soon as their down is dry, but as the parents have no means of conveying food to them, they must necessarily leave the nest within a day or so, and probably within a few hours of being hatched. It seems almost incredible that goslings should survive a fall from the nest on to a talus of rough broken rocks many feet below, with the prospect of a long and toilsome journey down to the river flats below over scree and boulders. From what we saw in the case of the Pink-footed Goose, however, I am inclined to believe that this is generally the case, though it is possible that in some instances the parent birds may manage to break the fall to some extent, as otherwise it would seem almost impossible for the young to survive.

It is also clear that the same nesting places are resorted to year after year. In most cases at the bottom of the nesting hollow and below the down lining, were fragments of the broken shells of some previous brood. Even when the same nest hollow is not used one can frequently discern similar hollows within a yard or two.

Only a single brood can be reared during the season, for not only is the summer short, but about mid-July or rather later the primaries are shed and the geese for the time being are rendered incapable of flight. It would therefore be impossible for them to reach their breeding places, and for safety they resort to the lagoons and swamps in the more inaccessible valleys.

In the present paper I do not propose to deal with the question of distribution of this species during the breeding season in the Spitsbergen group, but I may state that the locality discovered by Dr. Koenig is by no means the only one now known, as we have good evidence of breeding from two or three other districts, so that unless much shot down during the moulting season, the species will probably hold its own for long to come.

As the number of authentic wild-taken eggs is so small, the following figures may prove of interest. The average size of 34 eggs (22 taken by the Oxford Expedition and 12 by Koenig and LeRoi) is 76.37×49.81 millimeters: Maxima 82.7×46.4 and

77.6 × 52.7: Minima 70.6 × 50 and 82.7 × 46.4. The average weight of 10 eggs is 10.252 grammes, Max. 11.42; Min. 9.49. When fresh laid they are pure white, and bear a great resemblance to eggs of the Pink-footed Goose, but are somewhat smaller. They are, however, larger than those of the Brent on the average, besides being considerably heavier. The amount of down in the various nests varied considerably: probably in some cases a certain amount remained in the nest hollow from the previous year. We found no black feathers in the nest: all were either white or had only a faint greyish tinge.

On the whole the Barnacle Goose is decidedly a sociable species, and prefers to breed in colonies. In the Greenland colony described by Manniche the nests were evidently quite close together and two of the nests seen by us, were certainly not twenty yards apart. There is also good reason to believe that a much larger breeding place exists in Spitsbergen than that described above. When flushed from the nest the birds would join together in little parties of two, three or four, or even as many as seven, and fly anxiously up and down the valley, keeping up a continual cackle. For a goose, the Barnacle is not particularly shy, and it was curious to see the gander regarding us with an inquiring air, with head upwards as we looked down on to the nesting ledge from the hill-side fifty feet above him. When incubation is far advanced the goose sits very closely, and on one occasion I walked up a narrow track on to a ledge about half way up one of the bastion-like bluffs from the side, to within a few yards of a setting goose, in spite of the fact that a couple of shots had just been fired not fifty yards away and a dead bird from a neighboring nest lay on the rocks below.

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FLIGHT SONGS AND MATING SONGS.

BY ARETAS A. SAUNDERS.

SOME time ago, discussing the evolution of bird song (Auk XXXVI, pp. 149-151) I stated my belief that the mating songs of birds were more ancient in origin than ordinary songs, giving as an example the Eastern and Western Meadowlarks (*Sturnella magna* and *S. neglecta*). Later, Mr. Francis H. Allen, in an article on this subject (Auk XXXVI, pp. 528-536) discussed this case with some others, and gave some facts which seemed to him to prove that ordinary songs are more ancient than flight songs. Having given this subject a little more thought in the light of Mr. Allen's remarks, I have something more to add to the discussion.

Mr. Allen's conclusions appear to be entirely right. Such a flight song as that of the Ovenbird (*Seiurus aurocapillus*) does appear to be a more complicated development from the ordinary song. This seems to be true also of the flight songs of many other species, such as the Song Sparrow (*Melospiza melodia*), Maryland Yellow-throat (*Geothlypis trichas*), and McGillivray's Warbler (*Oporornis tolmiei*). But are these flight songs mating songs? A true mating song, if such a song distinct from the ordinary one is possessed by the species, should be confined to the season of courtship. In my experience the flight songs of these species are uttered most frequently late in the season, after the birds have chosen mates and begun nesting. It is true that I mentioned some of these songs in my letter as mating songs, but thinking the matter over I am doubtful of this. The flight songs of the Meadowlarks and the mating songs of the Robin (*Planesticus migratorius*) are confined to a very short season in April, when birds are choosing mates, and are very rarely sung at any other time. For this reason I believe they are true mating songs.

Mr. Allen mentions a song of the Black and White Warbler (*Mniotilta varia*) as an example of a mating song that is evidently a more complicated development of the ordinary song. At the time of reading his article I was not familiar with any such song. During the past summer I have paid more attention to the song of this species, and have heard several variations from the ordinary

type, some similar to, though not exactly like the song Mr. Allen describes. These variations however, were none of them heard until June and July after the species had been nesting for some time. The first one was noted on June 13. The nesting of this species begins in May in this region. In one case I found a bird of this species nest building at New Haven on May 10, a nest in which the last one of four eggs was laid May 20. This may have been a little earlier than normal time of nesting, but even so the mating song of this species, if it has one, should be sung mainly in the first half of May. I doubt, therefore, that the songs I heard were mating songs.

There seems to be a tendency on the part of a number of species to vary the song late in the season, too late for the variations to have any mating significance. I have noted such variations in the Yellow-throat, Field Sparrow (*Spizella pusilla*), Wood Thrush (*Hylocichla mustelina*), and others. The case of the Black and White Warbler I believe belongs with these, as does also that of the curious second song of the Blue-winged Warbler (*Vermivora pinus*). What significance there in these songs, is a problem to be worked out.

To take up the question of the Meadowlarks again, the flight song of the eastern species is certainly not a common one. The fact that it is almost entirely confined to a short season in the month of April makes it even less commonly observed. I agree with Mr. Allen that the ordinary song of this species is sometimes a mating song, as it is often sung on the wing, when in pursuit of a mate. It may be the fact that this song is useful as a mating song, that has caused many individuals to drop entirely the use of the more ancient type. Looking over my notes on this song, shortly after reading Mr. Allen's article, I could find no reference to the flight song of this species except in the month of April. I was about to conclude that it was entirely confined to this season, when a day or two later, on November 1, 1919, a bird favored me with the full flight song. This came in time to teach me that I could not make hard and fast rules about how and when a bird will sing. There seems every reason to believe, however, that this song is sung mainly in April and is a true mating song. My notes on it reveal another fact that may or may not be significant.

I have never heard this song sung except near the sea coast, by birds that breed in salt marshes. In fact I have heard it in only two localities, one at West Haven and the other at Norwalk. In these localities, however, it seems to be quite common in its season.

Concerning the flight song of the western species, it is more commonly heard than that of the eastern, at least in the state of Montana. Since little or nothing has been written about it and first-hand descriptions are better than those taken from memory, I submit the following description from my note book, dated at Helena, Montana, April 9, 1911. "The flight song differs from the ordinary one in quality, being less like the Oriole and more like the Bobolink. It begins with two or three clear low whistles, rendered from the perch before flight. After this introduction the bird rises into the air and starts a long-continued song very similar to that of the Bobolink. The first introductory notes sound like the call-note of the eastern Bluebird, though louder and somewhat lower in pitch." At the time this was written I had never heard the flight song of the eastern bird. I have, of course, never heard the flight songs of the two species where I could compare them, nor have I ever made accurate records of either one. My statement that they are much alike is based upon memory of the western song when comparing it with the eastern. As far as memory goes, except for the introductory notes, which are absent in the song of the eastern bird, the songs are practically identical.

If these songs are not ancient enough to go back to the time when the two species were one, and therefore more ancient than the ordinary songs, then the similarity between them is a most unusual coincidence. Having heard the flight songs of both species, I could be as easily convinced that the similarity in plumage of these two species is not ancestral, as that the similarity of their flight songs is not. Since the songs are evidently mating songs, and used almost exclusively in the mating season, the mating song in these species must have been the more primitive. It is true that these flight songs are longer and more erratic than the ordinary songs, as is the case with flight songs of most species; but they are also less pleasing or clearly musical in quality. This

is the contrary in such a flight singer as the Ovenbird. The ordinary song, therefore, even though shorter in duration than the flight song, is on a higher plane of song evolution, and, I believe, of more recent origin.

Concerning other flight songs, those of the Baltimore Oriole (*Icterus galbula*) and the Rose-breasted Grosbeak (*Zamelodia ludoviciana*) appear to be mating songs, and as Mr. Allen suggests, they appear to be elaborations of the ordinary song. They are probably evolved as he suggests, and are more recent in origin than the ordinary song. Those that I have mentioned above, that do not appear to be mating songs, because sung too late in the season, may possibly be steps in the adoption of a flight song by the species in question. That is, there are some species in which the flight song is the ordinary song, such as the Meadowlark, the Bobolink (*Dolichonyx oryzivorus*), the Longspurs, and Sprague's Pipit (*Anthus spraguei*). These birds are all ground nesters. In acquaintance with the singing habits of five of these species I might say that I have never known Sprague's Pipit to sing in any other manner than on the wing. McCown's Longspur (*Rhynchophanes mccowni*) sings from a perch only very rarely. The Chestnut-collared Longspur (*Calcarius ornatus*) sings from a perch more frequently than McCown's, but still rarely, while the Bobolink and Horned Lark sing from a perch about as frequently as on the wing. Now all these species sing so frequently on the wing that their flight song is in no sense a special mating song. Is it not possible that the other species, Ovenbird, Yellow-throat, Song Sparrow etc., birds that also nest on the ground, are slowly developing the flight song as an ordinary song? The true flight singers nest in open grass areas, in places where perches are hard to find. Those that have occasional flight songs nest in woods or thickets where perches may be had if desired. Perhaps the frequency of perches has kept the flight song from developing in these species as it has in the prairie birds. If in some future time, something should change the habitat of these species to more open regions, it is probable that true flight song would develop quickly.

48 Longview Ave., Fairfield, Conn.

BIRDS OF FROST VALLEY, SLIDE MOUNTAIN
REGION, SOUTHERN CATSKILLS.

BY MARY WOOD DALEY

In 1884, Eugene P. Bicknell wrote of the birds of Slide Mountain and near vicinity in the Catskills (Transactions Linnaean Society New York, Vol. 1-3, 1882-84). Ever since I found his valuable and interesting papers, I have been eager to add my small contribution to the bird knowledge of the same region. I have had an unusual opportunity for observation, have kept careful bird lists and, in recent years, detailed nature notes. The observations have been made from early June to middle or late September from 1908, until this year, 1920, omitting only the summer of 1914. The last three years have been devoted to very careful study.

Frost Valley is the name given by the natives to a sheltered valley extending south-westerly from Slide Mountain, the highest mountain in the Catskill group. This mountain is part of the Hudson-Delaware watershed. The Esopus flows into the Hudson, the Neversink into the Delaware, and each has its main spring sources on the slopes of Slide. The Neversink originates in two small streams called the East Branch and the West Branch, and it is the valley of the West Branch that is called Frost Valley. About four miles south-west of Slide Mountain, along this valley, stands our cabin.

We have called it "Tree Tops," and it is in the region near it that I have made my most careful bird records. Our latitude is a few seconds below the parallel of 42° North; our longitude approximately $74^{\circ} 31'$ West. The altitude is about 2100 feet above sea level. Wildcat Mountain rises to a height of 3268 feet immediately in front of us, and nearly due south (U. S. Geological Survey; Topographic maps; Slide Mountain Quadrangle).

The nearest village, formerly a center of the tanning industry, is Claryville in Sullivan County. It is nine miles by road west and south of us. The nearest railroad station is Big Indian in Ulster County on the Ulster and Delaware Railroad between Kingston and Oneonta, about thirteen miles to the north. To reach it we have to drive over a high spur of Slide Mountain.

I have been assisted in my observations by my brother, C. S. Daley and my sisters, Alice Wood and Marjorie C. Daley.

The region studied includes the state trail to Slide Mountain summit, and all of the valley extending in a general south-westerly direction for about eight miles from Slide. For convenience, I am dividing the notes under two heads, one on Slide Mountain birds, another on Frost Valley observations.

The climate for the whole region is usually cold in June, cool in July and August, cold in September. We have seen black frosts in June and September and frosts in early July and late August. It is difficult to raise any but early corn, and very nearly impossible to grow ripe tomatoes. We seldom have strong winds, or weather that is uncomfortably warm or humid. The general geological history of the region is well known. The Catskill Mountains, so-called, are the eroded and dissected remains of an ancient Devonian plateau. The rocks are sedimentary, mostly non-fossiliferous sandstone, contemporary with the Chemung deposits of the western and central portion of New York State. There are a great many loose rocks and boulders all through the valley, in woods and clearings alike. All that I have found are the characteristic sandstone.

Formerly this valley boasted many large hemlock trees, but forty or fifty years ago they were cut down, and the bark used for tanning purposes. The great moss-covered logs of these trees are a characteristic part of much of the portion of this region. There are some hemlocks still, and many firs, but the predominant trees are deciduous, mostly beech, yellow birch and four species of maple. Besides these, in much smaller numbers, we find basswood, mountain ash, hornbeam, black cherry (*C. serotina*), "fire" cherry and quaking asp. Shadbush (*Amelanchier*) is common and the berries are a favorite food of thrushes.

Dotted along the roadside as it follows the West Branch stream through the valley, are more or less frequent clearings, varying from rough pastures to fairly good meadows and gardens patches. When we came here in 1908, there were fourteen native homes, with families varying from two to ten people, interesting, helpful mountain folk, the best of neighbors. There was one large estate which was sold in 1916 and the present owner has increased the

estate, buying up nearly all the "native farms." The people have gone away, several clearings once occupied, especially near "Tree Tops," are deserted and neglected, and the woods are taking back their own. I speak of this because in the "Tree Tops" vicinity it has meant a change in the abundance of certain species of birds.

ANNOTATED LIST OF BIRDS.

I. SLIDE MOUNTAIN.

Altitude 4204 feet. Observations from the Winnisook Club (altitude 2800 feet) up the state trail to the summit; seven or eight trips to the top and back, in June, July and August. At the summit the characteristic growth consists largely of weather-worn firs. This past June we found a few canoe birches. The woods are dry above 3000 feet.

Bonasa umbellus umbellus. RUFFED GROUSE; PARTRIDGE.—It is quite usual to surprise a covey of partridge near the trail.

Empidonax minimus. CHEBEC; LEAST FLYCATCHER.—One record.

Zonotrichia albicollis. WHITE-THROATED SPARROW.—On every journey to the summit of Slide I have been refreshed by the song of the White-throated Sparrow. I have seen it only on or near the summit. Recorded in June, July, and August always in song. I have found the sparrow nesting in the Tannersville region of the Catskills, but in Frost Valley I have found it only in migration in May and late September.

Junco hyemalis hyemalis. JUNCO.—This bird has been seen on every trip up Slide at any part of the trail and on the summit. On July 25, 1919, I found a nest with four eggs. One of the parent birds was flushed from the nest which was tucked away in a moss-covered ledge cavity about halfway up the mountain.

Vireosylva olivacea. RED-EYED VIREO.—Common.

Mniotilta varia. BLACK AND WHITE WARBLER.—August 9, 1920.

Dendroica caerulescens caerulescens. BLACK-THROATED BLUE WARBLER.—Several records.

Dendroica magnolia. MAGNOLIA WARBLER.—Several records. One in June, 1920.

Dendroica pensylvanica. CHESTNUT-SIDED WARBLER.—Common.

Dendroica fusca. BLACKBURNIAN WARBLER.—Heard June 27, 1920.

Dendroica virens. BLACK-THROATED GREEN WARBLER.—Usual.

Seiurus aurocapillus. OVEN-BIRD.—Heard frequently, seen several times.

Wilsonia canadensis. CANADA WARBLER.—Usual.

Setophaga ruticilla. REDSTART.—August 9, 1920.

Nannus hyemalis hyemalis. WINTER WREN.—Pair seen July 25, 1919. They had worms in their mouths and much alarm was shown. Song heard June 27, 1920.

Certhia familiaris americana. BROWN CREEPER.—July 25, 1919, only record.

Penthestes atricapillus atricapillus. BLACK-CAPPED CHICKADEE.—Common.

Hylocichla aliciae bicknelli. BICKNELL'S THRUSH.—Seen several times and heard. On July 25, 1919, saw a pair much disturbed, worm in mouth of one bird; evidently nesting.

Hylocichla ustulata swainsoni. OLIVE-BACKED THRUSH.

Hylocichla guttata pallasi. HERMIT THRUSH.—Seen and heard several times. Usual.

A Nuthatch was heard August 9, 1920. Species uncertain. I searched in vain for the Philadelphia Vireo, Black-poll Warbler, Myrtle Warbler and Red Crossbill. The last three were reported by Mr. Bicknell. A pair of Hawks, either Sharp-shinned or Cooper's, were seen flying overhead August 9, 1920.

II. FROST VALLEY.

In this valley are two kinds of bird environment—the cultivated, sparsely inhabited clearings and homestead lands, specially concentrated and continuous about five miles from Slide by road, and a mile west of "Tree Tops;" and the wooded rather wild districts along the mountain streams, and on the slopes of the ridges. They mingle and overlap, so there is no sharp distinction to be drawn. However, I find in the cultivated areas about dwellings that the predominant birds are, as is to be expected, Bluebirds, Robins, House Wrens, Barn Swallows, Cliff Swallows, Goldfinches, Song and Vesper Sparrows, while in the wooded portions and neglected wild clearings, like our own at "Tree Tops," the common birds are warblers and thrushes. The altitude varies from 1800 feet above sea level to 2800 feet. Most observations were taken at our cabin, 2100 feet above the sea.

Botaurus lentiginosus. BITTERN.—One record, West Branch stream above small mill dam, July 22, 1911.

Butorides virescens virescens. GREEN HERON.—Two records, exact dates lost.

Helodromas solitarius solitarius. SOLITARY SANDPIPER.—Usual along streams. Earliest record July 7, 1912. July 13, 1920, many August records. The natives call this bird the "tip up" because of its

habit of teetering as it walks along the edge of streams, or on the mud beaches of pools.

Bonasa umbellus umbellus. RUFFED GROUSE. PARTRIDGE.—Common summer resident. Several records each season. The drumming of the male is one of the favorite sounds of our woods. We hear them frequently in June and again in September. It is not at all unusual throughout this region to surprise a covey of partridges, an anxious mother and several young.

Zenaidura macrour acarolinensis. MOURNING DOVE.—Seen in migration, late August or early September, in large flocks flying eastward up the valley, 1909, 1910, 1911 and 1918. No reason known for missing them in other years.

Circus hudsonius. MARSH HAWK.—Three records, August 9, 1918, August 1919, and August 14, 1920. Rare.

Accipiter velox. SHARP-SHINNED HAWK.—Not abundant. Six records.

Buteo borealis borealis. RED-TAILED HAWK.

Buteo lineatus lineatus. RED-SHOULDERED HAWK.—Both these hawks are usual throughout the season, but not abundant, *B. borealis* being the more common.

Haliaeetus leucocephalus leucocephalus. BALD EAGLE.—Somewhat doubtful record, because seen only in flight, twice, July 1920. The bird was flying westward down the valley, size conspicuous, white head and tail projected against mountain.

Strix varia varia. BARRED OWL.

Bubo virginianus virginianus. GREAT HORNED OWL.—Heard only, every season frequently. The natives call both of these "hoot owl."

Coccyzus erythrophthalmus. BLACK-BILLED CUCKOO.—Two nests and eggs, 1910. Seen and heard many times in our clearing, 1918, 1919 1920. Not abundant.

Ceryle alcyon alcyon. BELTED KINGFISHER.—Common summer resident. Usual along streams throughout the valley.

Dryobates villosus villosus. HAIRY WOODPECKER.—Three certain records before 1920. On June 29, 1920, and for two weeks following, often seen in the clearing.

Dryobates pubescens medianus. DOWNY WOODPECKER.—Common summer resident.

Sphyrapicus varius varius. YELLOW-BELLIED SAPSUCKER.—Usual each year. Earliest record July 2, 1919. Seen in each month. The apple trees in our clearing are marked with the regular ring of round holes in the bark due to the raids of this woodpecker.

Phloeotomus pileatus abieticola. NORTHERN PILEATED WOODPECKER.—One record; exact date lost (1909 or 1910).

Colaptes auratus luteus. NORTHERN FLICKER.—Usual, some-

times common summer resident, every month each year, throughout this region.

Antrostomus vociferus. WHIP-POOR-WILL.—One seen and call heard the same evening in September, 1917.

Chordeiles virginianus virginianus. NIGHTHAWK.—For seven seasons these birds have been seen in migration in large straggling flocks, feeding as they fly. Dates vary from August 22, 1912, to September 2 (the latter date is recorded in 1911, 1917, and 1919). They always fly eastward up the valley and can be seen for four or five hours continuously, at least fifteen to twenty-five birds in sight at a time.

Chaetura pelagica. CHIMNEY SWIFT.—Every year. A common resident. Nearly every June when we open "Tree Tops" cabin, we find one or two dessicated Chimney Swifts inside. Apparently they are caught in the fall and do not find the chimney road out. This season a Swift became caught in our kitchen range. Fortunately there were only a few dying embers in the stove and I was able to rescue him before he was injured.

Archilochus colubris. RUBY-THROATED HUMMINGBIRD.—Abundant summer resident. Often they are very familiar. I have seen one fly in the kitchen window, pass to each nasturtium on the table and fly out again. They come to bee balm (*Monarda didyma*) close to our porch. I have often seen them go to a child's bright hair-ribbon, or come within an inch of my chin, attracted by the bright red corner of the blanket on my outdoor couch.

Tyrannus tyrannus. KINGBIRD.—An occasional visitant to our woodsy clearing, but a usual summer resident in cultivated regions to the west of us.

Sayornis phoebe. PHOEBE.—Common, though not abundant summer resident. Nest frequently found, one under the ledge of our back porch, several on ledges of barns or under eaves; one inside a deserted house over the kitchen door; four, rather unexpectedly, in a rocky ledge cavity on cliffs; two near High Falls, nearly a mile from any human dwelling in deep woods; two on cliffs on the road to Claryville.

Myiochanes virens. WOOD PEWEE.—Usual summer resident. Not abundant.

Empidonax flaviventris. YELLOW-BELLIED FLYCATCHER.—Seen frequently in 1918, 1919 and 1920 with flocks of warblers in August. August 13 earliest record (1918 and 1920). Evidently a migrant.

Empidonax minimus. LEAST FLYCATCHER.—Usual summer resident.

Cyanocitta cristata cristata. BLUE JAY.—Occasional and irregular visitant. Earliest record July 21, 1920. Seen and heard nearly every season, but never for long at a time or often.

Corvus brachyrhynchos brachyrhynchos. CROW.—Usual summer resident in small flocks. Not abundant.

Agelaius phoeniceus phoeniceus. RED-WINGED BLACKBIRD.—Rare. One record in 1910 or 1911, and two pairs seen July 17, 1920, in a small meadow swamp in an open cultivated region.

Icterus galbula. BALTIMORE ORIOLE.—Never seen in the upper valley or wooded sections, but in a cultivated area near former Frost Valley P. O. we have noted a pair nearly every season. I have seen them fairly often near Woodstock and in Big Indian. On August 11, 1920, we watched a handsome male oriole bathing in the edge of the Esopus Creek.

Carpodacus purpureus purpureus. PURPLE FINCH.—Seen 1910, 1911, 1917, 1918, 1919, and 1920. The last three years they have been in full song each day in our clearing in June. Usual but not abundant.

Passer domesticus. HOUSE SPARROW.—Fortunately we are entirely free from this bird at "Tree Tops". I have seen a few pairs each year about the barns a few miles west of us.

Astragalinus tristis tristis. GOLDFINCH.—Common, often abundant, summer resident, especially in open homestead areas.

Poocetes gramineus gramineus. VESPER SPARROW.—Common summer resident below 2000 feet altitude, and in open cultivated districts west of us, along the road to Claryville. Never seen in our clearing or east of us toward Slide Mountain.

Zonotrichia leucophrys leucophrys. WHITE-CROWNED SPARROW.—Flock reported in spring migration one year during May by C. S. Daley.

Zonotrichia albicollis. WHITE-THROATED SPARROW.—Seen only in migration in Frost Valley (several seasons in May by C. S. Daley), once late September 1917 in fall migration.

Spizella passerina passerina. CHIPPING SPARROW.—Abundant summer resident. Several nests in apple trees near the house. In 1912 a pair of Chipping Sparrows brought their young to our front porch for crumbs of corn bread. It was a great pleasure to watch the helpless young, as large as their parents, hopping around after them, cheeping for food, while the parent picked up the crumbs and stuffed them down the throats of the little birds. The young Chippies became so tame that they came to our hands, and onto our laps and shoulders, searching for crumbs. One lit on my sister's fountain pen as she held it in her hand, writing. Several times they have hopped all over my bed covers in the early morning, often coming within two inches of my face. We have tried in other seasons to attract the sparrows, but chipmunks have prevented corn bread or any other crumbs remaining long enough. This year we have a feeding shelf, protected from chipmunks, but so far it has not found favor with the birds.

Spizella pusilla pusilla. FIELD SPARROW.—Usual, but not abundant; more often in open meadow regions. Mr. Bicknell did not find it above 2000 feet but I have found it nearly every season in clearings above this altitude.

Junco hyemalis hyemalis. SLATE-COLORED JUNCÓ.—Common summer resident. Several nests found every year. This bird is a very attractive and characteristic bird personality for the entire region.

Melospiza melodia melodia. SONG SPARROW.—Common, often abundant, summer resident. Since the migration of the natives from our valley the number of nesting birds of this species has decreased.

Pipilo erythrophthalmus erythrophthalmus. TOWHEE; CHEWINK.—In Mr. Bicknell's experience "the Chewink seems to be a casual visitor." With us, in former years, the Chewink was a usual summer resident. We have records of several pairs in and near our clearing throughout the season, from June to September, every year from 1908 to 1916. Their notes were one of the usual sounds near us. Since 1916 they have left us. We have not heard or seen a single Towhee in this whole region. Their desertion of this valley is coincident with the migration of the natives, but whether there is any causal relation due to increasing wildness of this region, I do not know. We do not find them in the cultivated area west of us and down the valley.

Zamelodia ludoviciana. ROSE-BREASTED GROSBREAK.—Usual summer resident; never abundant. For several years we have had one in full song in June, in the woods back of our cabin.

Passerina cyanea. INDIGO BUNTING.—Common summer resident throughout the valley. Nest found in 1910, in a low sapling near the edge of our clearing.

Piranga erythromelas. SCARLET TANAGER.—Usual summer resident throughout the region.

Petrochelidon lunifrons lunifrons. CLIFF SWALLOW.—Usual, but not abundant. Several pairs and nests were observed each season on certain barns in the valley from 1908 to 1917. In 1917, 1918 and 1919 I searched in vain for nests and birds, but this year (1920) they are with us again. Nests, adults and young have been seen many times, in the same region, but not on the same barns. Not seen after August 15.

Hirundo erythrogastra. BARN SWALLOW.—Common summer resident, nearly every barn has at least one nest each year.

Iridoprocne bicolor. TREE SWALLOW.—Flock on wires in the cultivated region west of "Tree Tops." Earliest date July 18, 1910. Usual in August. Records for every year except 1913, 1916 and 1920.

Bombycilla cedrorum. CEDAR WAXWING.—A usual, sometimes fairly abundant summer resident. We have often found their nests. This year in late July, a pair came close to the house for bits of string placed on a tree for them. We watched the nesting and the safe rearing of the young.

Lanius ludovicianus migrans. MIGRANT SHRIKE.—One record of a shrike well seen close to house, and thought to be this species. A Migrant Shrike was certainly identified September 16, 1920, in Big Indian Valley.

Vireosylva olivacea. RED-EYED VIREO.—Abundant summer resident. Several nests found.

Lanivireo solitarius solitarius. BLUE-HEADED VIREO.—Migrant. Earliest date August 28, 1919. Usually seen in September with flocks of feeding warblers, Red-eyed Vireos and Chickadees.

Lanivireo flavirons. YELLOW-THROATED VIREO.—Rare. Heard several times June 1918. Seen several times in flocks of warblers about the house August 1920. I have seen it in Big Indian and in the Woodstock region. One record in a warbler flock on Round Pond Road by M. C. Daley, August 16, 1920. Heard June 27, 1920, at Winnisook Lodge, Slide Mountain.

Mniotilta varia. BLACK AND WHITE WARBLER.—Regular summer resident.

Vermivora chrysoptera. GOLDEN-WINGED WARBLER.—Migrant. Not known here until 1918. Since then it has been seen here each year in late July and August in flocks of other warblers. In 1920 it was late in arriving (August 23) and very few in numbers.

Vermivora rubricapilla rubricapilla. NASHVILLE WARBLER.—In 1918 I identified a Nashville on July 15, in 1919, on June 16 in our clearing in full song. From 1910 to 1915 and in this season (1920) its first appearance was in August, in the warbler flocks that range about each year from July 20 to September 15.

Vermivora peregrina. TENNESSEE WARBLER.—Never identified in this region until July 15, 1918. The following year a Tennessee was in full song in Tree Tops clearing June 15, and seen several times through the following weeks. Adult and immature birds identified later in the season in warbler flocks. Common in migrant flock in August and September 1920.

Compsothlypis americana usneae. NORTHERN PARULA WARBLER.—Records as follows: August 5, 1915; July 1917; June 17, 1918, and often during that following season; June 23, 1919, and often in weeks following. In July saw adult feeding young. This season (1920) I did not see or hear the Parula until July 29, and only a few times later. There is plenty of the *Usnea barbata* in this region, the lichen so favored by the Parula for nesting material.

Dendroica caerulescens caerulescens. BLACK-THROATED BLUE WARBLER.—Common summer resident. Earliest date, June 14. Adult male, adult female and immature well known.

Dendroica coronata. MYRTLE WARBLER.—For this bird I have only one record in late September 1917.

Dendroica magnolia. MAGNOLIA WARBLER.—Common summer resident.

Dendroica pensylvanica. CHESTNUT-SIDED WARBLER.—Common summer resident, often abundant. Nest 1910. Male, female and immature birds are very familiar in this region.

Dendroica fusca. BLACKBURNIAN WARBLER.—Usual in "Tree Tops" clearing in June and July. Sometimes seen in warbler flocks in August and early September.

Dendroica virens. BLACK-THROATED GREEN WARBLER.—Common, often abundant, summer resident.

Seiurus aurocapillus. OVENBIRD.—Common summer resident, though varying in abundance. We have found several nests. The flight song or ecstasy song of this bird is one of the delights of our woods. This bird has increased in numbers in the vicinity of our clearing in recent years.

Seiurus noveboracensis noveboracensis. NORTHERN WATER-THRUSH.—One or two records.

Seiurus motacilla. LOUISIANA WATER-THRUSH.—This lovely little habitué of mountain streams is never abundant, but hardly a season has passed without one or two records. Nest in 1910. Nesting location discovered in 1919, but nest not found.

Oporornis agilis. CONNECTICUT WARBLER.—Rare. September 21, 1917, pair well seen in "Tree Tops" clearing. August 16, 1919, and several dates following at "Tree Tops" and on the road near Parker Brook.

Oporornis philadelphia. MOURNING WARBLER.—1910, 1911, a pair feeding young often seen in "Tree Tops" clearing. Not identified at all 1912 to 1917, though we looked for it. Pair seen July 18, 1919, and in 1920, this warbler was seen and heard often at "Tree Tops" in June. I have seen the female several times in August 1920, and have several August records for song in the early morning.

Geothlypis trichas trichas. MARYLAND YELLOW-THROAT.—Common summer resident throughout the valley.

Wilsonia pusilla pusilla. WILSON'S WARBLER.—Migrant. Records date from August 18 to September 14, 1912 1917, 1918, 1919, 1920.

Wilsonia canadensis. CANADA WARBLER.—Usual each year. Earliest record June 28, 1912. More abundant in late July and August. Possibly a migrant during most seasons.

Setophaga ruticilla. REDSTART.—Common, often abundant, summer resident. I have found them commonly, contrary to Mr. Bicknell's experience, above an altitude of 2000 feet, even on Slide Mountain.

Dumetella carolinensis. CATBIRD.—This bird used to be a common summer resident before 1916, when the native people left this part of the valley. It is still here but has become scarce. I have seen and heard them each year, but the number of nesting pairs seems greatly reduced. They are really rare about our "Tree Tops" cabin and eastward toward Slide. This is perhaps another illustration of the effect of change of land culture on bird population.

Toxostoma rufum. BROWN THRASHER.—Very rare. One record, exact date lost (C. S. Daley).

Troglodytes aedon aedon. HOUSE WREN.—Usual, though not abundant, summer resident, especially, as is to be expected, near inhabited houses. Several nests found, one in an old shoe hung on a nail in a half-open wood-shed.

Nannus hiemalis hiemalis. WINTER WREN.—Usual, in deep woods back of "Tree Tops" ridge (Valley of the Biscuit Brook); also on Wildcat Mountain and on Slide. This season I have twice seen a single individual of this species in the brush along the roadside in front of our cabin.

Sitta carolinensis carolinensis. WHITE-BREASTED NUTHATCH.—I have but one certain record of this bird in this region in the nesting season (July 6, 1917). This year I have heard it frequently, and seen it once, through July and August. I have frequent records in other years in September, and in deep ravine woods of Fall Brook, August 22, 1919.

Sitta canadensis. RED-BREASTED NUTHATCH.—One record, late September 1917, on the roadside in front of our house.

Penthestes atricapillus atricapillus. CHICKADEE.—Common summer or permanent resident.

Regulus satrapa satrapa. GOLDEN-CROWNED KINGLET.—One record, September 23, 1917.

Regulus calendula calendula. RUBY-CROWNED KINGLET.—September 24, 1917, and often in the week following.

Hylocichla mustelina. WOOD THRUSH.—Heard and seen occasionally 1911, 1913 and 1915. In June, 1918 and 1919, a pair nested in woods back of "Tree Tops." Not common, never abundant.

Hylocichla fuscescens fuscescens. VEERY.—Usual summer resident. In June 1918 a nest was found in the top of an old tree-stump about three feet from the ground with four eggs. Family of young safely hatched and reared. The song of the Veery in these woods is one of the delights of the season.

Hylocichla ustulata swainsoni. OLIVE-BACKED THRUSH.—Common summer resident every year, increasing in numbers in recent years as the valley has become more wild. The notes of the Olive-backed Thrush are in general in the same musical "family" with those of the Veery. He performs a spiral-like set of notes with ascending scale (contrasting with the descending scale of the Veery), ending in a lovely high warbling trill that is missed by many ears.

Hylocichla guttata pallasii. HERMIT THRUSH.—Always usual, now a common summer resident. It is the most dominant bird of our clearing in the last five years. We often hear several Hermits at one time. Their favorite hour for song is, as with most other birds, at dawn and at dusk; but it is not unusual to hear a Hermit at any hour of the day, even at noon. A single bird will sit on some favorite perch and sing for one or two hours at a stretch, especially during the second nesting stage in

late July. Nest found June 1918 with three eggs. Parent on nest watched at a distance for several days, then the nest was found to be empty. In the same nest two cold Hermit Thrush eggs were found two years later (1920).

Planesticus migratorius migratorius. ROBIN.—Common summer resident throughout the valley. Many nests found.

Sialia sialis sialis. BLUEBIRD.—In our clearing these birds are only occasional visitants, but in the homestead region west of us they are usual, though never abundant, summer residents.

My list totals 89 species or with the addition of the House Sparrow, 90. These may be grouped as follows:

Migrants seen before June 8 after July 15 only, usually in August or September, 14 species.

Occasional Visitants or rare Summer Residents, 15 species.

Usual Summer Residents, 60 species.

In comparing my observations with those of Mr. Bicknell previously referred to (Transactions Linnaean Society New York, Vol. I-III, 1882-84), it is interesting to note that he mentions in addition to my list for Slide Mountain, the Blackpoll Warbler and the American Crossbill. His report covers a wider Catskill region than I have chosen, even the Hudson Valley near Catskill, N. Y. The birds he mentions, not on any of my records are:

Olive-sided Flycatcher

Screech Owl (Hudson Valley)

Bobolink (Valley pastures)

Red-headed Woodpecker (Hudson Valley)

Cowbird (cites Mr. Burroughs as authority)

Meadowlark (Esopus Fields)

Orchard Oriole (few)

Myrtle Warbler (in June)

Warbling Vireo (Pine Hill and Big Indian)

Wood Duck

Black Duck

Sky Lark (*Alauda arvensis*) (reported by Burroughs)

Traill's Flycatcher

The birds unrecorded by Mr. Bicknell which I can add to his list for the Catskills are:

Marsh Hawk

Tree Swallow

Golden-winged Warbler
Nashville Warbler
Tennessee Warbler
Connecticut Warbler
Wilson's Warbler
Ruby-crowned Kinglet
White-crowned Sparrow

All of these, except the Nashville and Tennessee Warblers are migrants, therefore would not be found in June, the time of Mr. Bicknell's own observations.

The three most interesting bird events of our experience here are:

(1) The change in dominant bird population since the decrease in human homesteads and cultivation. Where there were about twenty families scattered in homes through the Valley, the predominant birds in and about "Tree Tops" were Song Sparrows, Towhees, Catbirds and Robins. Since the relative desertion of the Valley by the native population, though the "Tree Tops" clearing itself is unchanged, the characteristic birds about our cabin are warblers, Ovenbirds and thrushes.

(2) The thrush chorus at sunset and dusk, and again at dawn. For the last five years we have been treated to a feast of thrush song. It is not unusual to hear several of each kind singing at once—Hermits, Olive-backs, Veeries and often a lone Wood Thrush. All through June and until July 29, we have all four species singing, each with his own incomparable notes. After July 20, the Veeries and Wood Thrush notes are silent; after August 1 the Olive-backs stop, while the Hermits sing until August 15 or 22—based on three years' records.

(3) The mixed flocks of flashing, fascinating, restless warblers, vireos, smaller fly-catchers and chickadees from July 20 till the time of our departure in September. I regret that I am not here during the entire migration season to keep records of all the changes in bird population.

Sleighton Farm; Darling, Delaware Co., Pa.

A COMPARISON OF THE FOOD HABITS OF BRITISH
AND AMERICAN STARLINGS.

BY E. R. KALMBACH.

ECONOMIC ornithology has pointed out few if any more regrettable instances of change in the economic relations of a bird than that which occurred and is still transpiring in the case of the Starling in Great Britain. While the earlier research workers in the field of economic ornithology in the British Isles were aware of the potential power for harm in the Starling should it ever become overabundant, they were satisfied, that in normal numbers this bird was one of the most beneficial. Gilmour, Newstead, Theobald, McGowan, and Collinge all recognized the admirable qualities of this bird as a destroyer of terrestrial insect pests and urged its conservation. As long ago as 1913, however, Dr. Walter E. Collinge, the eminent Scottish biologist, sounded a note of warning that the increase of the Starling population was rapidly bringing about a change in the economic status of the bird. At that time he said:¹ "As has long been contended by agriculturalists, numerically this bird has increased enormously during the last ten or twelve years. This increase I believe to be largely due to migration and the protection afforded to wild birds in general. Considerably reduced in number, I believe the Starling would regain the good name it has borne in the past, and prove a most useful bird to the farmer; at present it is far too numerous and a source of considerable loss."

In April, 1919, Dr. Collinge stated further² that at that time "the Starling offers a most serious menace to the production of home grown food, and any further increase in its numbers can only be fraught with the most serious consequences." In his latest contribution³ to this pressing subject the same authority prefaces his remarks by the unequivocal assertion that "for many years past there has been taking place a sure but gradual

¹ The Food of Some British Wild Birds, p. 49. London, 1913.

² The Plague of Starlings. National Review, No. 434, pp. 252-257, April, 1919.

³ The Starling: Is It Injurious to Agriculture? Journal of the Ministry of Agriculture, Vol. XXVII, No. 12, pp. 1114-1121, March, 1921.

change of opinion with reference to the economic status of the Starling, for from one of our most useful wild birds it has become one of the most injurious. Its alarming increase throughout the country threatens our cereal and fruit crops, and the magnitude of the plague is now fully realized."

So emphatic a condemnation of a species by the leading economic ornithologist in Great Britain must necessarily attract the attention of all engaged and interested in the agricultural problems of that country during this period of reconstruction, and it doubtless will result in some aggressive measures being taken to reduce the number of this species to the point where it again may render its efficient aid as a check on insect life without exacting an unfair toll for its services. For the farmers and bird students of this country Dr. Collinge's castigation of the Starling in its native home carries with it much food for thoughtful consideration. A discussion of the recent findings concerning its economic relations abroad compared with the result of investigations in this country, where the Starling has obtained a firm foothold, consequently seems called for. Fortunately, in his recent studies of the food habits of birds, Dr. Collinge has used the volumetric method of stomach analysis, identical with the procedure in vogue for many years in this country and used in the recent study of the food of the Starling in the United States.¹ This permits comparisons in a way that heretofore has been impossible.

In explanation of the great increase of the Starling in Great Britain and the resultant change in its economic status we are told that it is due "*firstly*, to the security of its nesting site; *secondly*, to the change in its food habits; and *thirdly*, to the autumnal immigration." Either one of the latter two phenomena alone might easily result in disaster when an economically important species is involved. "There is fairly reasonable evidence," Dr. Collinge states, "to show that in the past the bulk of the food consisted of insects and insect larvae, slugs, snails, earthworms, millepedes, weed seeds, and wild fruits; in more recent years this has been supplemented by cereals and cultivated fruits and roots."

¹ Economic Value of the Starling in the United States. By E. R. Kalmbach and I. N. Gabrielson. Bulletin 868, U. S. Dept. of Agriculture (Biological Survey), pp. 1-66, pl. 1-4, January 10, 1921.

As a resident of the east coast of Scotland for four years he attests to the countless thousands of migrating Starlings that reach the British Isles from the northeast. Within his comparatively limited field of observation he reported daily the arrival of flocks of 1,000 to 5,000 in September of 1915. "In 1916, the numbers seemed less but they increased again in 1917, and in 1918, they outnumbered anything seen previously. . . . One flock alone contained something between 150,000 and 200,000 birds, and on the 9th of September a still larger flock was seen. This immigration of course occurs all along the eastern coast of England and Scotland, so that the actual number of arrivals must total many millions."

As a basis for determining the economic influences of the Starling in Great Britain, Dr. Collinge had available the stomachs of 368 adult birds secured from various districts and during every month of the year. These were used in an investigation concluded in October, 1918. To compare with his results we have the data from the examination of 2,157 stomachs of adult Starlings collected in the centers of Starling abundance in this country mainly during 1916. A tabular presentation of the food percentages as determined in each of these investigations will permit an easy comparison:

Food Items	Per cent in Great Britain	Per cent in the United States
Animal food.....	51.00	57.00
Vegetable food.....	49.00	43.00
Injurious insects.....	26.50	34.66
Neutral insects.....	3.50	1.74
Beneficial insects.....	2.50	4.89
Earthworms.....	8.50	Negligible
Slugs and snails.....	6.50	0.94
Millipeds.....	1.50	11.71
Miscellaneous animal matter.....	2.00	1.58
Cereals.....	20.50	1.16
Cultivated roots and leaves.....	2.50	Negligible
Cultivated fruits.....	15.50	4.41
Wild fruits and weed seeds.....	7.00	23.86
Miscellaneous vegetable matter.....	3.50	13.57

At the outset, the division of the food into its elementary animal

and vegetable portions reveals a significant difference between the British and American Starlings. Nearly half the sustenance of the British birds comes from the vegetable kingdom, while in the food of the American birds a difference of 14 per cent. exists between the two portions. Analysis of the differences in the percentages of the component parts of the food yields startling, and, for us, gratifying, results. In the consumption of injurious insects of various kinds the Starlings of this country surpass the British cousins in a signal manner: of neutral insects they take about half as many: and of beneficial forms they eat 4.89 per cent. as compared with 2.50. This record of a greater consumption of beneficial insects is due largely to the inclusion in this estimate most of the ground beetles (*Carabidae*) eaten by the American birds. There is no doubt that a great part of these insects, especially members of the genera *Anisodactylus*, *Amara*, and *Agonoderus*, so frequently eaten by Starlings, possess marked vegetarian habits and rightly should be credited as neutral or injurious. The high percentage of earthworms consumed by the British birds is indicative of feeding during rainy spells or in a naturally more humid climate. The American birds subsist to a considerable extent on earthworms during prolonged rainy spells but forsake such food as soon as dry weather keeps these annulates below the surface. Slugs and snails, some of which are pronounced pests in the British Isles, are much less common in areas frequented by the Starling in this country, a situation reflected in the food percentages. In the case of the millipeds eaten, however, an anomalous situation presents itself. These myriapods have been generally recognized as a menace to gardens in Europe, where they at times are very abundant. In the United States, however, their injurious habits, though recognized, have attracted much less attention—too little perhaps, if their frequency in the Starling's food is a fair index of their abundance. Over a ninth of the Starling's annual food in this country is secured from this source, whereas in Europe the bird takes only about an eighth of this, proportion.

As it is in the consumption of its vegetable food that the Starling's greatest powers for damage lie, it is especially gratifying to learn that in this respect our Starlings show the most marked

difference in food preferences from their relatives abroad. With a less pronounced vegetarian diet to begin with our Starlings present a very commendable record when this portion of their food is subjected to careful analysis. The most bitter complaints to-day against the Starling in England concern its depredations on sprouting grain and these are convincingly substantiated by the percentage of cereals eaten by the birds examined. Over a fifth of their food came from this source, wheat being frequently attacked. In this country, however, the Starling's limited granivorous propensities are satisfied mainly at the expense of ripening corn (maize). Even the percentage of 1.16 given for the American bird conveys an exaggerated idea of the damage it inflicts on growing or ripened grain, as much included under this item was gleaned from chicken yards or was waste grain picked up during the winter months. In its feeding on truck crops there is a possibility that the negligible percentage recorded against our bird does not adequately represent the change that at times occurs. In its consumption of cultivated fruit the American bird again presents a better record, especially when it is realized that about a third of that consumed was secured from frozen apples pecked into during the winter months. As a cherry thief, however, our bird is doubtless as proficient as the British one. The abundance of acceptable wild fruits, wild black cherries, elderberries, sour gum berries, bayberries, and the fruit of sumacs, both poisonous and non-poisonous, is a dominating factor in neutralizing the effect of the Starling's vegetarian diet in this country; and likewise the lack of a supply sufficient to meet avian needs is probably an important reason for the Starling's objectionable vegetarianism in England. There it consumed less than a third the quantity of such food eaten by the Starling in America. The ability (or necessity) of the American bird to make out a living in close proximity to densely populated sections is reflected in its consumption of miscellaneous vegetable food during winter, secured mainly from garbage dumps. In this activity it has shown marked proficiency.

Thus in five of the more important of the twelve categories into which Dr. Collinge has segregated the food of the British Starlings, namely injurious insects, millipeds, cereals, cultivated roots and

leaves, and cultivated fruits, we find the American bird has a better record. The consumption of five others, neutral insects, earthworms, miscellaneous animal matter, wild fruits and weed seeds, and miscellaneous vegetable matter, may be considered neutral in its aggregate effect. On the basis of the figures presented the American bird has made a less satisfactory record in the consumption of only two items—beneficial insects, of which it eats more; and slugs and snails, of which it takes a very few. Even here the offense becomes less when it is considered that many vegetarian species of carabids were included in the percentage of beneficial insects in the estimates for the American bird, and that in the United States injurious slugs and snails are by no means so abundant or destructive as in England.

A segregation of the percentages of the foregoing tabulation, after the manner employed by Dr. Collinge in this recent presentation of the case of the Starling, will permit a comparison of the aggregate influences for good and harm in the birds of the two countries.

Activities	In Great Britain (Per cent)	In America (Per cent)
Beneficial		
Animal food.....	34.50	47.31
Neutral.		
Animal food.....	14.00	3.80
Vegetable food.....	10.50	38.85
Total.....	24.50	42.65
Injurious.		
Animal food.....	2.50	5.89
Vegetable food.....	38.50	4.15
Total.....	41.00	10.04

Such strongly contrasting evidence leaves not a shadow of doubt as to the marked economic superiority of the American bird based on a study of food habits at this time. The degree to which the American bird is more or less culpable than the British as a destroyer of other birds can not be determined for lack of comparative evidence. A discussion of this phase of the Starling's economic influence in this country will be found in the treatise pre-

viously alluded to in this discussion.¹ The same may be said regarding a discussion of the objectionable nature of the birds' fall roosts.

In addition to recognizing the overwhelming economic superiority of the American bird over his foreign relative, there is no recent evidence materially to change the decision regarding it in this country made in Bulletin 868 of the Department of Agriculture: "Most of the Starling's food habits have been demonstrated to be either beneficial to man or of a neutral character. Furthermore, it has been found that the time the bird spends in destroying crops or in molesting other birds is extremely short compared with the endless hours it spends searching for insects or feeding on wild fruits. Nevertheless, no policy would be sound which would give the bird absolute protection and afford no relief to the farmer whose crops are threatened by a local overabundance of the species. Consequently, the enactment of laws that afford protection to the Starling, except when it is actually doing or threatening to inflict damage, appears to be the wisest procedure. With its ready ability to adapt itself to new environments, the Starling possesses almost unlimited capacity for good, but it is potentially harmful in that its gregarious habits may abnormally emphasize some minor habit which would be indulged in at the expense of growing crops. The individual farmer will be well rewarded by allowing a reasonable number of Starlings to conduct their nesting operations on the farm. Later in the season a little vigilance will prevent these easily frightened birds from exacting an unfair toll for services rendered."

U. S. Biological Survey, Washington, D. C.

¹ Bulletin 868, U. S. Dept. of Agriculture (Biological Survey), 1921.

THE FUNCTION OF THE OESOPHAGUS IN THE
BITTERN'S BOOMING.

BY JAMES P. CHAPIN.

Plate VI

ON May 4 1921 the American Museum received from West Nyack, N. Y., an adult male American Bittern which immediately aroused our interest, because of the unusual thickening of the skin of its neck. This exhibited a flabby, oedematous condition like that commonly met with in the "brood-spot" on the breast of an incubating bird. The looseness and great width of this skin, thanks to the sparseness of the feathers on the back of the neck, are well shown in Pl. I, Fig. 2, from a photograph of the dead bird. I was at once reminded of the condition I had observed in the male of an African Rail, *Sarothrura elegans*, which seemed beyond a doubt to inflate its oesophagus with air to use it as a resonating organ for its remarkable voice.

Thus we sought to inflate the neck of the Bittern, blowing through a glass tube. By inserting this in the glottis it was a simple matter to expand the air-sacs of the body, especially the abdominal ones, but also a pair just behind and below the wings, and the "cervical" sacs between the clavicles. Yet there was clearly no connection here with any air-sac in the neck proper, and indeed the Hornbills are almost the only birds known to possess such a connection in the pneumatic system. A number of other birds, however, the best type of which is the Marabou Stork (*Leptoptilos*), do have so-called "cervico-cephalic" sacs that extend down the neck from the head, and receive air from the nares, whence it passes through the space beneath the eye-ball.

Our Bittern was tested for such sacs in the neck by blowing strongly into the internal nares. A slight bulging of the sub-ocular region resulted, but this did not extend to any air-cavity in the neck; nor could we obtain any better result by blowing directly into the air-space under the eye through a large hypodermic needle. Cervico-cephalic air-sacs were entirely wanting.

This left only one organ in the neck that might be filled with air: the oesophagus itself. Blowing straight into the gullet it was easy to distend the neck throughout its whole length, until it

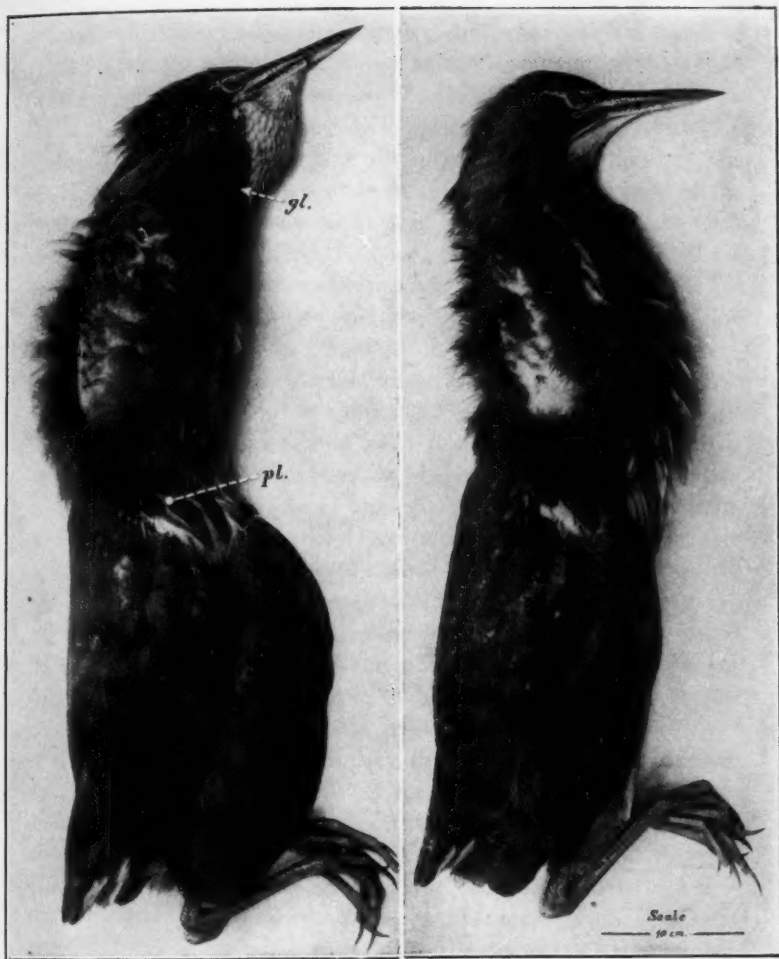
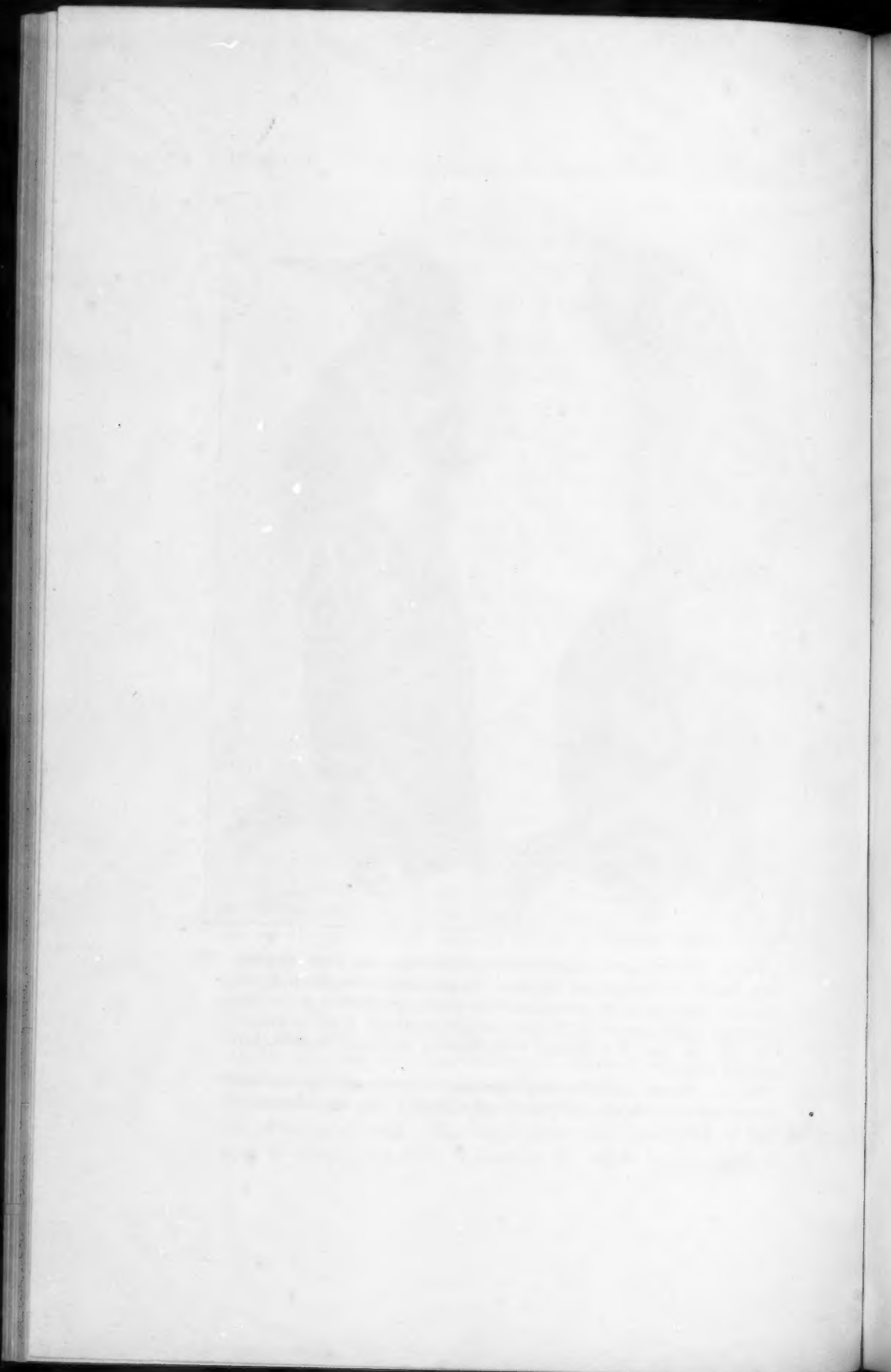


Fig. 1. Adult male American Bittern in breeding season when oesophagus is blown up with air; *gl.* indicates the position of the glottis at this time; *pl.* marks the point where the white plumes are inserted in the skin. Inasmuch as the air-sacs of the body are also expanded, it will be evident that none of them is concerned with elevating the white feathers, here scarcely visible.

Fig. 2. Bittern in the breeding season, to show the width of the neck here completely deflated. (Photos supplied by the American Museum of Natural History).



measured 10 centimeters in diameter; and when the bill was held closed, this air escaped only very slowly, even though no effort was made to close the nostrils. To make the photograph shown in Pl. VI, Fig. 1, it was necessary to place a small rubber band round the bill, and a small piece of damp cotton in the mouth. The glottis seemed unusually free from the hyoid arch or base of the tongue, and lay relatively far back in the throat. When the neck was moderately distended with air, the glottis was situated six centimeters behind the posterior angle of the gape, while the tip of the long slender tongue still reached just to the angle of the gonys, quite well out in the beak.

One unusual feature of this Bittern's mouth still remains to be mentioned. When the tongue came up it passed between or below two curious elongated pads placed on the inside of the mandibular rami, and nearly touching in the center. These we had never noticed before in any member of the Heron family, and it may well be that they have something to do with keeping the air in the gullet, especially since their internal structure resembles that of the thickened skin of the neck, and they are apparently only enlarged temporarily. When the bill is closed these pads lie well in front of the internal nares as may be seen in Figure 2, so they cannot serve to block the nostrils, but rather to close the mouth itself more tightly.

Supposing then that the Bittern does swell its oesophagus with air, how does this proceed? It might conceivably swallow one gulp of air through the action of the tongue and hyoids, but I do not think it could engulf a second mouthful while still retaining the first. As for sucking air into the lower oesophagus, there is no adequate mechanism available. Far more likely I should consider it, that the air is forced into the oesophagus through the trachea, by closing the beak and driving the breath from the air-sacs of the body. The distance to which the glottis can be retracted into the throat renders this more probable.

Thus far my statements may seem highly hypothetical, and I confess that I have never seen a Bittern dilate its neck. I simply believed that it might do so from analogy with other birds like the Pectoral Sandpiper, in which the practice is well known.¹ But fortunately there is an excellent and detailed account, in Brad-

¹ Cf. Nelson, *Auk*, 1884, pp. 218-221.

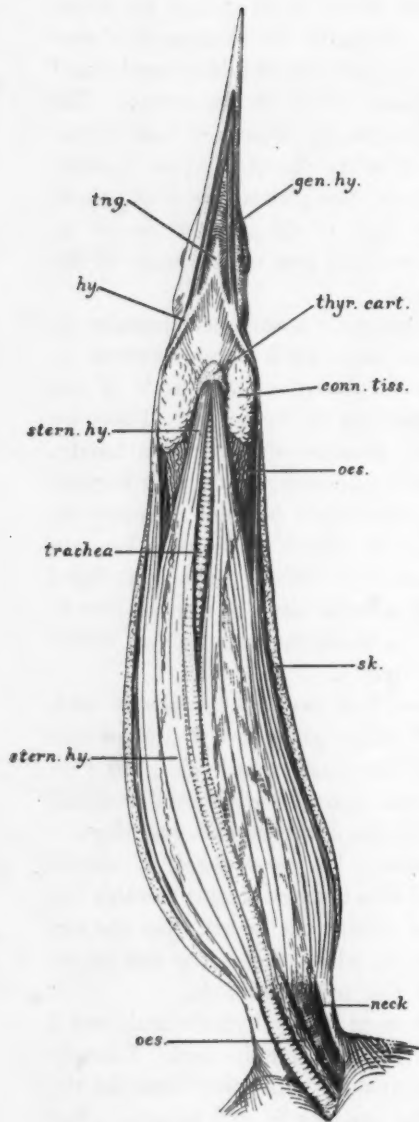


Fig. 1



Fig. 2

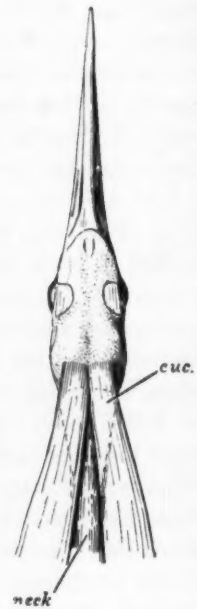


Fig. 3

ford Torrey's 'Everyday Birds' (1901) pp. 69-81, of the actions of several Bitterns as seen during their spring "pumping" in a Massachusetts marsh. On taking up this charming little book, after many years' neglect, I was surprised to find how closely my hypothesis tallied with Torrey's conclusions after watching the live bird. I cannot do better than to quote him directly:

"The Bittern has been standing motionless"

"Suddenly he lowers his head, and instantly raises it again and throws it forward with a quick, convulsive jerk. This movement is attended by an opening and shutting of the bill, which in turn is accompanied by a sound which has been well compared to a violent hiccough. The hiccough—with which, I think, the click of the big mandibles may sometimes be heard—is repeated a few times, each time a little louder than before; and then succeed the real pumping or stake-driving noises.

"These are in sets of three syllables each, of which the first syllable is the longest, and somewhat separated from the others

"But the looker-on is likely to quite as much impressed by what he sees as by what he hears. During the whole performance, but especially during the latter part of it, the bird is engaged in the most violent contortions, suggestive of nothing but a patient suffering from uncontrollable nausea. Moreover, as soon as the preliminary hiccoughs begin, the lower throat or breast is seen to be swelling; the dilatation grows larger and larger till the pumping is well under way; and so far as my companion and I could detect, does not subside in the least until the noises have ceased altogether.

Explanation of figures on p. 198.

Fig. 1. Neck of the Bittern, partly dissected, skin removed from lower side, leaving superficial muscles intact. Oesophagus not inflated; *conn. tiss.*, mass of swollen connective tissue at sides of throat; *gen. hy.*, genio-hyoid muscle; *hy.*, hyoid arch; *oes.*, oesophagus; *sk.*, thickened skin, seen in section; *stern. hy.*, sterno-hyoid muscle, ensheathing the neck below. *thy. cart.*, thyroid cartilage, lying beneath glottis; *ing.*, base of tongue, as seen through floor of mouth. One-third natural size.

Fig. 2. Open mouth of male Bittern in Spring; *int. nrs.*, the opening of the internal nares; *p.*, one of the pads on the inside of the mandible, between which the tongue, *t*, protrudes. (From photo supplied by the American Museum of Natural History.)

Fig. 3. Skinned head of Bittern, from above, showing the occipital portion of the cucullaris muscle, *cuc.*, attached to back of skull. One-third natural size.

"How are the unique, outlandish notes produced? I cannot profess to know. Our opinion was that the bird swallowed air into his gullet, gulping it down with each snap of the beak. To all appearance it was necessary for him to inflate the crop in this way before he could pump, or boom. . . .

"I made some experiments afterwards, by way of imitating the noises, and these experiments, together with the fact that the grand booming seemed to be really nothing more than a development of the preliminary hiccoughs, and the further fact that the swelling of the breast did not go down gradually during the course of the performance, but suddenly at the close,—all these incline me to believe that the notes are mainly if not entirely caused by the inhalation or swallowing of the air . . . "

* * * * *

The only point on which I cannot agree with Torrey is the "swallowing" of the air, which is mechanically so difficult to explain. I believe rather that it comes from the trachea through the glottis.

To examine further the structure of the accessory vocal organs, since it would seem still as though the sound must originate in the syrinx, I made a thorough examination of the neck and its covering. Rolling up the skin of the neck from below, I found the walls of the oesophagus as thin as usual, and extensible as they always are in a Heron's or Bittern's neck. There was no trace of true air-sacs, all dilation must involve the oesophagus alone. But the skin of the neck, down to a point close to the shoulders, was very much thickened all the way round save for the mid-dorsal line, where it remained as thin as normally. The thickening was due mainly to the bloated condition of the connective tissue forming the deeper layer of this skin, now five millimeters thick over a large part of the neck. Besides an infiltration of lymph, a very rich supply of small blood-vessels was also noticeable in this tissue, which extended from near the base of the neck up to a point close to the back of the skull. Just behind the head, more deeply placed, and close to the horns of the hyoid, there was a loose mass of similar lymphoid tissue on each side of the throat; and as already stated, the elongate pads inside the lower jaws were filled with the same tissue, all of which would undoubtedly subside if not com-

pletely disappear after the breeding season.

On the inside of this heavy skin of the neck, moreover, there was a thin layer of muscle, its fibers running in an antero-posterior direction, and lacking only on the median dorsal line. Posteriorly no attachment to the body was noticed, at most it was slight, and the muscle was closely united with the skin; but anteriorly there were two paired attachments. The upper ones were on the occipital region of the skull, and showed that the greater part of this muscular layer represents the longitudinal layer of the cucullaris muscle, present in very many birds. On the lower side of the neck, two muscular bands presumably representing the sterno-hyoid, inserted anteriorly on the thyroid cartilage, whence other muscular strands continued to the hyoid. (See Figures 1 and 3.)

The contraction of this sheet of dermal muscle would shorten the skin of the neck, and rather than to draw air into the oesophagus it would tend to expell it; so the explanation of the process is not to be found here. What we can say with certainty is that the American Bittern, in producing its well-known "pumping" notes, does distend the oesophagus with air, and that in connection with this habit there is developed in the breeding season a remarkable thickening of the skin of the neck, with perhaps a modification of parts of the lining of the mouth that serve to help in retaining the air. Another adult male Bittern, skinned by our taxidermist about a fortnight earlier, is stated by him to have had the neck in the same condition. Probably only the male birds exhibit these modifications, for they alone are known to pump or boom.

The use of the oesophagus in such a manner is by no means confined to the Bitterns. It is perhaps best known in the case of the Pectoral Sandpiper, though according to Pycraft¹ many of the Pigeons produce their incessant "cooing" in this way; and even the male Ostrich is said to fill his gullet with air, and then produce by its expulsion the loud sound known as "bromming."² A somewhat similar action has been observed in the case of an African Bustard, *Neotis cafra denhami*, which utters a loud bark like that of a Bushbuck,³ yet has no pharyngeal sacs like those of

¹ 'A History of Birds,' 1910, pp. 148, 149.

² See Duerden, *American Naturalist*, LIV, 1920, p. 306.

³ Forbes, *Proc. Zool. Soc. London*, 1880, p. 478.

Otis tarda; and an Australian member of the same family, *Eupodotis australis*,—Pycraft tells us— likewise employs its gullet as a vocal sac. Further, the male of an African Rail, *Sarothrura elegans*, which is responsible for a clear, long-drawn note recalling a tuning-fork, and heard usually at night, undoubtedly shares the habit of inflating the oesophagus, and has a thickening of the skin of the neck nearly comparable to that of the American Bittern. This I have examined personally in the Congo.

Finally, there are several passerine birds with patches of bare skin at the sides of the neck, for example the African *Camaroptera superciliaris* and *Bathmedonia rufa*, as well as the South American *Donacobius atricapillus*¹ in which something of the sort appears to take place.

A word may here be appended concerning the display of fluffy white plumes by many male American Bitterns in the mating season, to which attention was called by Mr. William Brewster some years ago.² These can be erected conspicuously at the sides of the upper back. The specimen we have been describing possessed such tufts of cream-colored feathers, arising from the anterior part of the pectoral tracts, a little in front of, and lateral to, the fore end of the large powder-downs. Mr. Brewster was not satisfied as to just how these plumes could be raised, though it had been suggested to him that the skin of this region might be inflated; but from what has already been said, it will be clear that no air-space exists beneath them. Instead the mechanism for elevating them was seen to consist of the superficial muscle commonly found at the base of the neck, the cervical portion of the cucullaris, which runs obliquely downward and backward from the mid-dorsal line at this point. Its lower edge, in this case, was found to be inserted in the skin about the bases of these white feathers, which are usually concealed by the dark streaked ones lying just in front. So the contraction of this muscle would suffice to elevate the plumes in exactly the way Mr. Brewster described it. Perhaps also the shortening of the longitudinal muscle strands beneath the skin of the neck would pull that of the base forward, and aid in the process.

American Museum of Natural History, New York, N. Y.

¹ See Fuertes, *Bird-Lore*, XV, 1913, p. 342.

² 'Auk,' 1911, pp. 90-100.

RODERICK ROSS MACFARLANE, 1833-1920.

BY EDWARD A. PREBLE.

Plate VII

RODERICK ROSS MACFARLANE, a Corresponding Fellow of the American Ornithologists' Union since 1885, died in Winnipeg, Manitoba, Canada, on April 14, 1920.

He was born in Stornoway, Island of Lewis, Scotland, November 1, 1833. His early years were passed in his native town where he attended the Parochial school and the Free Church Academy. He also spent nearly three years in the law office of the Procurator Fiscal of the Lewis District.

Related on his father's side to one of the officers of the old Northwest Company, and on his mother's to Sir Alexander Mackenzie, the famous explorer and also a member of the same great fur-trading corporation, it was only natural, when he reached early manhood, that he should cast his fortunes in the New World with the Hudson's Bay Company, at that time holding the exclusive fur-trading privileges over most of Canada, and being all-powerful in its government. He accordingly signed a five year contract as apprentice clerk in the service of this great concern, the oldest incorporated company in the world, and sailed from Stromness, Orkney Islands, on July 3, 1852, in the Company's ship *Prince of Wales* bound for York Factory on Hudson Bay. On August 18, being then under 19 years of age, he landed in the New World, where, with the exception of two brief visits to the land of his birth, he was to spend the remainder of a long and useful life.

His stay at York Factory was brief, and he then proceeded inland to Norway House and Fort Pembina (on Red River near the Manitoba boundary) where he served for a time as clerk and later was in charge of an outpost at Long Lake. In 1853 the Fur Trade Council, composed of the most influential of the officers of the Company, in recognition of the ability of young MacFarlane, appointed him in charge of Fort Rae on the northern shores of Great Slave Lake, and here he passed the next winter. The following summer (1854) he was in charge of Fort Resolution,

and in the autumn was made manager of old Fort Good Hope on the lower Mackenzie. The next winter he took charge of Fort Liard, on Liard River, the main western branch of the Mackenzie, later spent three months at Fort Simpson, the head post of the Mackenzie River District, and then resumed charge of Fort Good Hope where he remained through 1856.

In 1857, still with headquarters at Fort Good Hope, he made an exploratory trip to the lower Anderson River, at that time an absolutely unknown region. This trip, undertaken mainly to open the way to new trade channels but partly, perhaps, in obedience to a yearning for new scenes and adventures, was destined to be an event of considerable importance in the world of ornithology. On this journey, after leaving the valley of the Mackenzie, he descended successively the Lockhart and Anderson Rivers, named by him after brother officers in the Hudson's Bay Company. When within a few miles of the Arctic Ocean a large camp of Eskimo was encountered, the inhabitants of which plundered MacFarlane's small party, and brought his explorations in that direction to an end. Retracing his way on foot up the river, MacFarlane, with characteristic energy, procured a small canoe from an Indian encampment, and explored a part of the upper Anderson, and, reaching the Hareskin River by an overland march, descended it to the Mackenzie. Many years later, he was awarded the Victoria Arctic Medal, mainly in recognition of this exploration.

We have no evidence that up to this time MacFarlane had possessed any particular fondness for natural history, but the latent passion was shortly to be awakened. In the summer of 1859 Robert Kennicott, young and enthusiastic, was sent to the Mackenzie region by Professor Spencer F. Baird of the Smithsonian Institution. Necessarily making his headquarters at the posts of the Hudson's Bay Company, the only civilized settlements, his enthusiasm proved so contagious that his hosts, the fur traders, hitherto interested in the feathered and furred inhabitants only in a commercial or gastronomic way, forthwith became zoological collectors. The names of these men, whose labors of love during the next few years added so materially to the scientific knowledge of northern North America, including only those who worked in the Mackenzie Basin, number at least a score, and of this generous

company MacFarlane made by far the most complete and valuable collections. To the young fur trader, then in his early manhood, endowed with an alert and receptive mind, a splendid physique, and an indomitable energy, the enthusiastic example of Robert Kennicott furnished the inspiration needed to point out a pursuit which occupied his spare time and efforts for several years. His earlier collections were made mainly about Fort Good Hope, but his more important contributions came from Anderson River and the region adjacent. A brief notice of the history of Fort Anderson, a trading post built by him on that river, is necessary to a proper understanding of the situation.

Having secured the sanction of the Hudson's Bay Company MacFarlane began in the summer of 1860 to establish a trading post in the region explored by him in 1857, to trade with the Eskimo of Liverpool Bay and the adjacent Arctic Coast, as well as with the Hare Indians, a part of whose hunting grounds lay to the southward. Men were set to work cutting timber on the banks of the river at the point nearest the proposed site where suitable trees abounded. In June, 1861, the prepared lumber was rafted 80 miles down stream, and the post was built. It consisted of suitable houses and stores, surrounded by a heavy stockade with bastions at the corners, and a gateway dwelling which faced the river. The site was on the right bank of the Anderson, approximately in latitude $68^{\circ} 35'$. (Fig. 1.)

During this season, although his associates and their teacher Kennicott were busily engaged during their spare time at their respective stations in collecting birds and eggs and other objects of natural history, MacFarlane was fully occupied in the construction of his new trading post. It was Kennicott's intention to spend the next season in this new field, but urgent duties in the United States made it necessary for him to leave the north, and it was left to MacFarlane to prosecute the work alone. Accordingly, after the completion of the spring fur trade in 1862, he made the first of a series of overland journeys through the dwarfed timber and across the Barren Grounds to Franklin Bay. On these journeys, necessarily made on foot, he was accompanied by several Indians, and the different members of the party took separate courses, so as to discover as many nests as possible. Rendezvous

Lake, a locality which figures prominently in the biographies of many of the nesting birds of this subarctic region, situated on the border of the Barren Grounds, formed a sort of halfway station, where the various parties met by appointment and from which the accumulated collections were sent back. Continuing northeastward toward the Arctic Ocean, the line of march crossed the Wilmot Horton River, the spruce-clad valley of which was found to be the home of the most northern-venturing individuals of a number of woodland birds. After reaching the coast, MacFarlane and his native companions spent several days studying

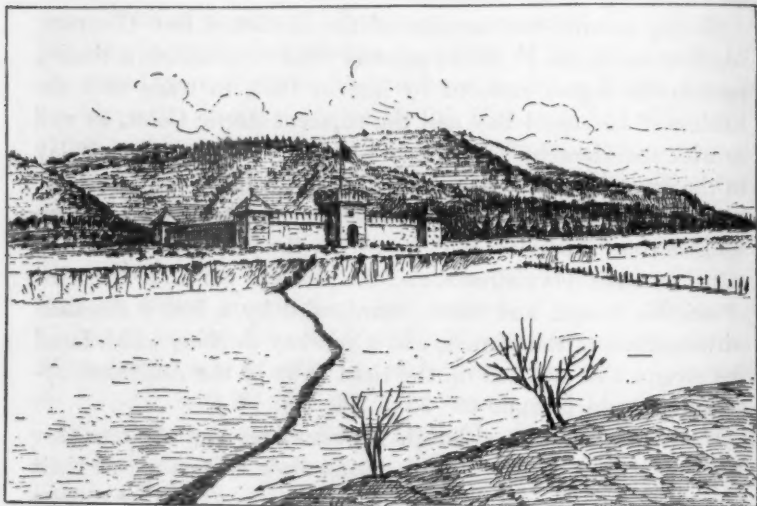
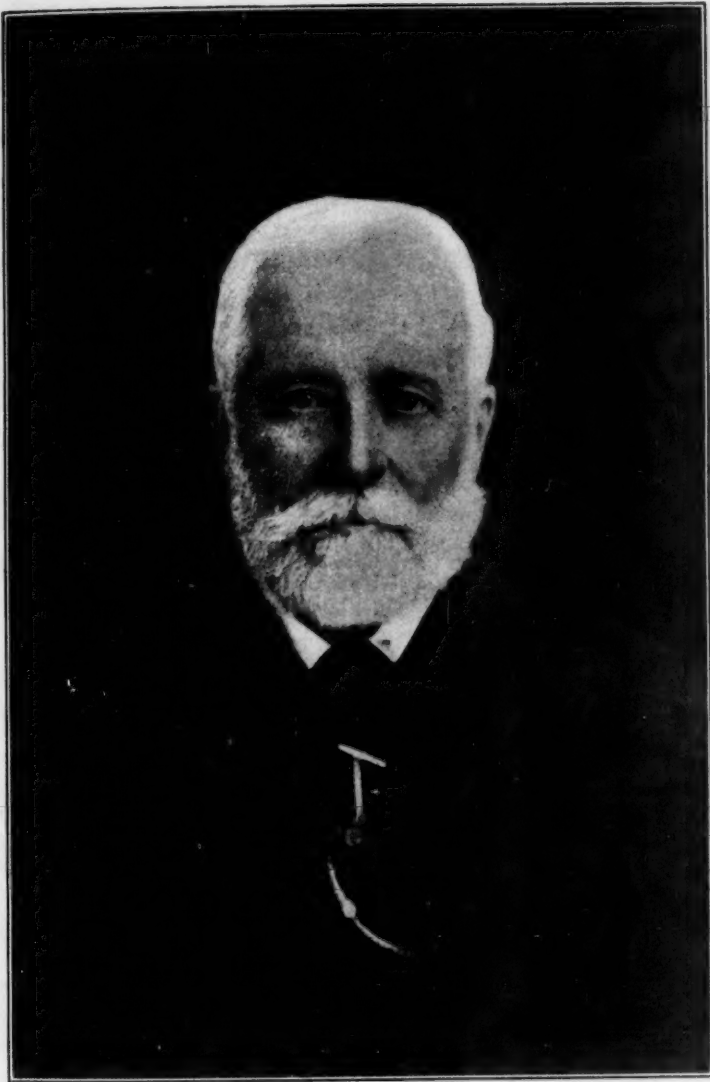


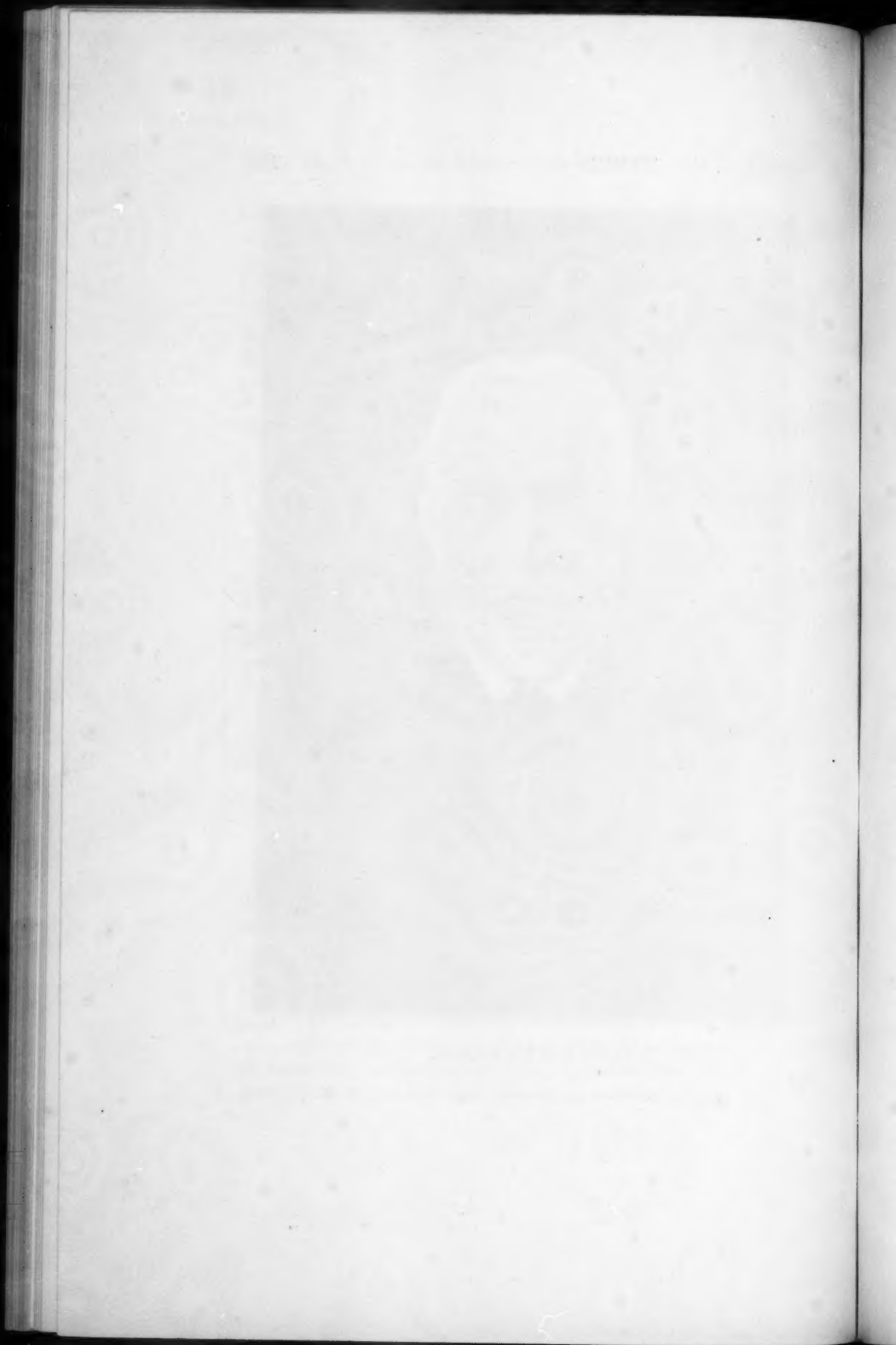
Fig. 1. FORT ANDERSON (from sketch by Emile Petitot, 1865.)

the terns, gulls, and shorebirds of Franklin Bay, after which the brave party, heavily laden with the precious specimens, retraced its way over the weary miles of tundra and mossy fen to the trading post.

In the following summer the journey was repeated on a larger scale. MacFarlane led one party over substantially the former route, while others followed parallel courses to the north and south, all assembling at Rendezvous Lake. Franklin Bay was again their objective, and was more thoroughly worked, a large island



RODERICK ROSS MACFARLANE.



some distance off shore being included in the survey. Other similar trips were made in the same region in 1864 and 1865, and the work doubtless would have been continued for several years longer but for a very serious epidemic of scarlatina which ravaged the country in the winter of 1865-66, and resulted in the death of so many native hunters, both Indians and Eskimo, that further continuation of the remote post was considered unprofitable. It was therefore definitely abandoned in 1866.

As before intimated, MacFarlane's labors resulted in many important discoveries. The eggs and nesting habits of many birds, particularly waders, including Baird's Sandpiper. Buff-breasted Sandpiper, Sanderling, Red Phalarope, and Eskimo Curlew, were first made known to naturalists, and many unknown plumages were obtained. Considering the circumstances under which these collections and observations were made, their number and general excellence were marvelous. Let us picture those little companies of natives under the leadership of their indomitable chief, toiling through the trackless wilderness, carrying on their backs not only their camping equipment and bedding but the collections made from day to day, climbing hills, wading swamps, fording rivers, through sun, and rain, and fog, assailed by countless hordes of insect pests, and hunting their food on the way. Shall one criticize the bird skins if they are not all models of excellence, or some of the eggs because they are emptied through a larger hole than is recommended in the manuals?

MacFarlane's catalogs of his collection made during these years, beautifully written by his own hand, and now preserved in the United States National Museum, bear the data of upwards of 5,000 specimens, mainly ornithological, but including also a large number of mammals, sent by him to the Smithsonian Institution. It should be stated in this connection that in many hundreds of cases a specimen meant to MacFarlane the nest and eggs, together with the parent taken for identification. In addition his contributions to the field of ethnology were numerous and of inestimable value.

After his forced abandonment of the fruitful field in the Anderson region, MacFarlane seems temporarily to have lost interest in natural history. Perhaps he was discouraged by the untimely

death of his close friend Kennicott, whose memory he held in reverence during the remainder of his life; perhaps the fields in which he now found himself seemed unworthy of exploitation after his experiences in the virgin Anderson wilderness. Whatever the cause, we know of no collection being formed by him for a period of nearly fifteen years. From 1866 to 1870 he was stationed mainly at Fort Simpson. In the spring and early summer of the latter year he obtained leave of absence to visit his old home in Scotland. On his return in July, 1870 (the territory so long held and governed by the Hudson's Bay Company having been in the interval transferred to the Dominion Government), he was appointed to take charge of the Athabaska District, and held this charge until 1885. During this period several small collections of birds and eggs were made by him and his associates about Great Slave Lake and Athabaska Lake, mainly in 1880 and 1885. The bulk of these specimens was sent to John J. Dalglish, of Scotland, with whom, doubtless, MacFarlane had become acquainted during his visit to his old home. A portion went to Dr. Robert Bell, then Director of the Canadian Geological Survey, who was forming the nucleus of the Government collection now housed in the Victoria Memorial Museum, at Ottawa.

During the latter part of his incumbency as head of the Athabaska District he was instrumental in introducing steam on the lower Athabaska and the Mackenzie, thereby displacing the old method of transportation by means of scows and York boats, propelled entirely by man power. About the same time the continuation of the Canadian Pacific Railway westward made it possible to utilize more fully the section of the Athabaska then little known above the mouth of the Clearwater. MacFarlane's exploration demonstrated its superiority, under the new conditions, over the time-honored route by way of the Methye Portage, which had been followed for practically a hundred years, and this new route has since been in use until the last year or two, when the construction of a new branch railroad from Edmonton to the head of steamboat navigation at the mouth of the Clearwater has caused the abandonment, probably forever, of this stretch of difficult water.

In 1886 MacFarlane was granted a year's leave of absence, and

made a second and longer visit, his last, to the old country. On his return he was transferred to New Caledonia District, in British Columbia, with headquarters at Fort St. James, Stuart Lake, where he remained until 1889. Here he made a small but varied collection which was forwarded to the U. S. National Museum. This collection, as far as we know, was the first made in central British Columbia, and naturally constituted a valuable addition to our knowledge of this remote section.

From 1889 to 1893, MacFarlane was in charge of Cumberland District, being stationed at Cumberland House on the lower Saskatchewan. Here he made a considerable collection of birds and eggs, as well as mammals, which was augmented by the labors of several of his associates stationed at outlying posts. This collection, which contained many rarities, was also forwarded to Washington.

MacFarlane published only a few articles, but his papers were all important. In 1890, in the 'Canadian Record of Science,' appeared an account of his first trip to the Anderson. During the same year he published 'Land and Sea Birds Nesting Within the Arctic Circle in the Mackenzie River District.' This was reprinted, with additions and corrections, the year following, in the 'Proceedings of the U. S. National Museum,' under the title: 'Notes on and List of Birds Collected in Arctic America, 1861-1866.' This paper treats about 131 species. A report of similar scope on mammals appeared in the 'Proceedings of the U. S. National Museum' in 1905. His last important paper on birds was published in 1908 as an appendix to a book by Charles Mair, 'Through the Mackenzie Basin,' and was entitled 'List of Birds and Eggs Observed and Collected in the Northwest Territories between 1880 and 1894.' This includes some account of his Stuart Lake and Cumberland House collections.

MacFarlane married in 1870 a daughter of Alexander Christie, Jr., an officer of the Hudson's Bay Company, by whom he had eight children, five girls and three boys. The youngest boy died when a child; the others attaining positions of honor and trust in law and finance. Several of his daughters were married to men of prominence. He was survived by most of the members of his large family.

MacFarlane retired from the service of the Hudson's Bay Company in 1894, and spent practically all the remainder of his life in Winnipeg, Manitoba. Fur traders have seldom engaged in any regular and definite occupation after retirement, and MacFarlane was no exception to the rule. He retained his interest in the affairs of the Dominion and the world generally, however, and read eagerly and widely. Always interested in the natural history work of others, especially in expeditions to the scenes of his early labors, he was ready to assist in any way to further such plans. He remained active until a short time before his death, retaining in his old age, to a remarkable degree, that keenness of mind and vigor of body which had enabled him to accomplish so much, both as a fur trader and traveler, and as a zoological collector.

Biological Survey, U. S. Department Agriculture, Washington, D. C.

ADVENTURES IN BIRD-BANDING IN 1921.

BY S. PRENTISS BALDWIN

BIRD-BANDING seems, at last, to be coming into its own, since its recognition by the U. S. Biological Survey, and the widespread publicity given to this method of bird study during the last two years. During 1921, three hundred lovers of birds in all parts of the United States and Canada have taken out permits to begin this work; and within the month an additional three hundred or more, from Canada and New England alone, have gathered in Boston to organize the New England Bird-banding Association. The purpose of this organization is to cooperate with the Survey in establishing lines of trapping stations in New England, and by occasional meetings to compare notes and promote bird-banding.

It is because there are so many who are taking up the work anew that the writer will not attempt in this paper to compile scientific data bearing upon one or another phase of bird life, but will instead try to suggest, and illustrate by the data, different methods that may be employed in obtaining the facts.

The bird-bander will save much time, by first reading not only the History and Purpose of Bird banding, by Mr. Frederick C.

Lincoln (*Auk*, April 1921, Page 217) but by reading also the papers therein referred to. This means not only to study the papers published in the last two years, but to go back to 'The Auk' of 1909 and 1910, and learn that Dr. Leon J. Cole then suggested many of the facts which are only now being proved by these methods.

After seven years of very active bird banding the writer more and more appreciates the foundations laid for bird banding by Dr. Cole, Mr. P. A. Taverner, and Dr. Paul Bartsch, and the years of patient work by Mr. Howard H. Cleaves. The fact is that one does not know what to look for, or what small items may be overlooked and omitted from the notes, items which may be of greatest value. The writer's early notes lack much in value through failure to record certain facts; and years of trapping of House Wrens seem almost wasted because of not knowing until this year how to distinguish the sex of the living birds at a few feet distance.

The bird bander will soon see that two distinct purposes are accomplished in his work. The one is a national purpose, primarily the study of migration of birds, in which each bird bander contributes only his proportionate part to a great mass of information which will accumulate in Washington, and the result be obtained by the co-ordination of the work of all observers. The other purpose is the gathering of most interesting local and domestic details of the daily lives of the birds; matter which cannot be handled from Washington, but which must be worked up for the scientific world by the bird bander himself. No one who takes up this work need feel that by filing his data with the Biological Survey, he is to lose any of the value of it for his own purposes, or for publication over his own name.

Since the question is still sometimes asked, whether bird banding methods are cruel or harmful to the birds it is best to explain that every banding station becomes in fact a bird sanctuary, where food and shelter may be obtained, as well as safety from natural enemies. After seven years of bird banding by the writer on his farm near Cleveland, a prominent ornithologist, upon visiting the farm, said that these few acres had more birds per acre than any place he had ever seen.

So few have been the serious accidents to birds in my traps, or in handling of thousands of birds each year, that I can remember every fatality that has occurred in the seven years experience; such accidents have not averaged two in a year; less than one accident to the thousand birds handled. One of the joys in this work is that the ornithologist may handle for scientific study great numbers of birds in live healthy condition, in normal colors, not affected by the changes which take place so quickly after death, and study normal measurements, and natural attitudes, and individual characteristics, and all without destruction of life. And against my, possible, dozen accidents may be credited the saving of hundreds, yes, actually hundreds of lives of birds on my farm by my care of them.

One form of slight injury does occur with some species of birds in certain forms of traps; and the bird bander may expect it, and not be disturbed about it. Birds remaining in the trap for a time and repeatedly pushing the head through the wires, often scratch the base of the bill; sometimes so severely as to give the head a bloody appearance. This injury is more apparent than real, and when the bird is taken again in a day or two the head is quite healed. I have never known one of my birds to suffer weakness or death from this cause. This form of injury can be prevented by making the trap with wire netting of much smaller mesh; or on the government sparrow trap use a band of copper mosquito mesh netting around the back of the trap: a band four inches high about the back of the trap will mostly prevent the birds pushing their heads through.

In looking over the following pages in which the adventures of one bird bander in one season are chronicled, bear in mind that the writer is a business man, who can give only part of his time to this avocation; and may we hope that from now on several hundred bird banders will each be securing during each season, much more information than the writer has been able to gather.

BANDING AT THOMASVILLE, GEORGIA, DURING
FEBRUARY AND MARCH, 1921.

PERCENTAGE OF RETURNS:

It is necessary to state the number of birds banded in previous seasons, as that, of course, determines the possibilities of returns

in this season, and in the table a wide gap will be noticed, caused by the writer's absence from Thomasville in the two seasons 1918 and 1919. This explains the fact that very few "returns" were taken this year from the years previous to 1920.

Previously Banded:

1915	Resident birds	27	Migrants	63	Total	90
1916	"	44	"	169	"	213
1917	"	24	"	215	"	239
1918	"	0	"	0	"	0
1919	"	0	"	0	"	0
1920	"	51	"	232	"	283
		<hr/>		<hr/>		<hr/>
		146		679		825

Some idea of the returns to be expected may be shown by the following figures:

- Of the 90 birds banded in 1915, 17 birds, or 19 per cent., have been taken in subsequent years.
- Of the 213 birds banded in 1916, 31 birds, or 15 per cent., have been taken in subsequent years.
- Of the 239 birds banded in 1917, 12 birds, or 5 per cent., have been taken in subsequent years.

This decreasing percentage of birds re-taken is due to the break in the trapping during 1918 to 1919; but the high rate of returns will be seen in the taking of so many of the 1917 birds even after so long an absence.

In 1921 there were taken 20 birds, or 7 per cent., of those banded in 1920; 5 birds from 1917, and 3 birds from so long ago as 1916.

In 1921 in six weeks of February and March, 1040 birds were handled, 347 new birds, 28 from previous years, and 665 "repeats" meaning by that recaptures of birds already handled one or more times during the season.

It is surprising how constant this last number is, year after year, two-thirds of all birds caught being birds that have been in the traps before.

Of the 28 birds taken from previous years 14 were residents, from the possible 146 previously banded; 14 were migrants, from the possible 679 previously banded; considering the long travel, and many risks of migrant birds through the year, as well as the

possibility of their not returning to exactly the same spot for the winter, we may be surprised not that the proportion of permanent residents retaken is greater, but that so many migrants are taken.

This designation of certain species as residents must be taken only as a convenient classification, but as no trapping is done here at other times of the year there is no proof that these individuals do actually remain here all the year.

RECORDS OF SOME SUPPOSED RESIDENT BIRDS:

Among these "resident" records a few, especially the records of the Blue Jays, begin to give some idea of how long birds may live, under natural conditions.

- X No. 1916. Blue Jay (*Cyanocitta cristata cristata*)
1916. Banded March 28 at Station A
1920. Taken February 15 at Station A
1921. Taken March 6 at Station AA

As this bird was at least one year old when banded, it is now at least six years old, and each year is taken at exactly the same spot, Station AA, being just on the other side of the house from A.

- No. 3177 (*). Blue Jay (*Cyanocitta cristata cristata*)
1916. Banded in March
1921. Taken March 26 at Station C

Another bird that is now at least six years old. This bird is either 31775 or 31777, the last figure is completely worn away, being on the under side of the tarsus, and this bird evidently has an unusual habit of squatting as it feeds on the ground.

No. 31772 was taken in 1920 and the last figure was then quite distinct, so this is not likely 31772.

- No. 1929. Blue Jay (*Cyanocitta cristata cristata*)
1917. Banded February 17 and taken also March 11 at A, March 14 at A, and March 16 at A.
1921. In January found dead near Station D, about 300 yards from where it was banded in 1917.

This bird was at least five years old.

- X No. 41897. Blue Jay (*Cyanocitta cristata cristata*)
1917. Banded March 12 at Station B.
1920. Taken February 27 at Station C, and March 3 at Station A.
1921. Taken March 11 at Station A.

These stations A, B and C are within 200 yards of each other, so the appearance at these different stations does not imply much wandering. This bird is another which is at least five years old.

- No. 53075. Blue Jay (*Cyanocitta cristata cristata*)
1920. Banded February 16 at Station AA.
1921. Taken March 28 at Station D.
Very few bands on birds I have retaken have shown much wear, but on this band the figure 7 is worn so that it looks like a figure 1.
- No. 53080. Blue Jay (*Cyanocitta cristata cristata*)
1920. Banded February 16 at Station AA and taken also March 2 at C, March 8 at AA, March 23 at A.
1921. Taken March 30 at AA.
- No. 53092. Brown Thrasher (*Toxostoma rufum*)
1920. Banded February 29 at Station B and taken March 21 at B with 40796.
1921. Taken March 29 at B.
- No. 53093. Brown Thrasher (*Toxostoma rufum*)
1920. Banded March 10 at Station A, and taken March 14 at A.
1921. Taken February 23 at A and March 17 at A.
- No. 19247. Among the residents I missed this famous Brown Thrasher of so much history since 1915 and I fear the bird has died. (See 'Auk,' April 1921, page 234.)
- No. 53086. Mocking Bird (*Mimus polyglottos polyglottos*)
1920. Banded Feb. 19 at Station D and taken Feb. 28 at D, March 1 at D, March 7 at D, March 8 at D, March 10 at D twice, March 11 at D.
1921. Taken Feb. 22 at D.
This bird evidently lives near Station D, the last of the line of traps, and about 300 yards from A.
- No. 53069. Red Bellied Woodpecker (*Centurus carolinus*)
1920. Banded February 15 at Station B.
1921. Taken February 25 at A and March 3 at A.
- No. 41898. Cardinal, female, (*Cardinalis cardinalis cardinalis*)
1917. Banded March 12 at Station B.
1921. Taken March 28 at Station D.
A bird at least five years old. This is the oldest Cardinal in my records.
- No. 53077. Cardinal, male, (*Cardinalis cardinalis cardinalis*)
1920. Banded Feb. 16 at Station A.
1921. Taken March 22 at Station D; the band was pinched tight on the leg; it was loosened and fixed so that he can not bend it again.
- No. 53089. Cardinal, male, (*Cardinalis cardinalis cardinalis*)
1920. Banded February 20 at Station C and taken 2 at C.
1921. Taken March 23 at D, band pinched tight, and loosened.

No. 53094. Cardinal, male, (*Cardinalis cardinalis cardinalis*)

1920. Banded March 13 at Station A, and taken March 22 at C.

1921. Taken March 19 at Station C, band pinched tight, but leg not injured, so I replaced the band.

MIGRANTS:

Among the migrants, the White-throated Sparrows make up the most interesting group, and I have long ago decided that this is a definite neighborhood group, coming here each winter, since I first found them in 1915, always at Station A, which is, in fact, under my bed room window, in the shrubs about the base of the house. I have not in any year failed to take one or more birds of this group, from previous years, and this year one good old friend appeared to tie up with the past.

No. 38160. White-throated Sparrow (*Zonotrichia albicollis*)

1916. Banded March 5 at Station A, taken March 6 at A, March 7 A, March 16 at A.

1917. Taken March 7 at A, March 19 at A.

1920. Taken February 25 at A, Feb. 27 at A, March 2 at A, Mar. 3 at A, Mar. 6 at A, Mar. 22 at A.

1921. Taken March 17 at A, Mar. 23 at A, Mar. 25 at A, Mar. 27 at A.

This bird is now at least six years old, and has made five trips to Canada and return since being banded; or if not to Canada, at least to northern New York or New England. ('Auk,' April 1921, page 236.)

No. 45405. White-throated Sparrow (*Zonotrichia albicollis*)

1920. Banded February 19 at Station A, taken March 7 at A.

1921. Taken March 25 at A, Mar. 26 at A and Mar. 28 at A.

A sad accident happened to this bird; on March 26, his left foot was broken, snapped apparently in the trap in a rush into a corner with six others; I did not know how to mend it and decided to cut it off; when taken again, on March 28, the bird seemed as lively and healthy as ever. This is one of the, perhaps, half dozen accidents that have occurred to my birds in as many years, and in handling many thousands.

I had an interesting experience this season in trying to get these White-throats at Station A. The trap was placed in an open rose bed about fifty feet from my window, and day after day the White-throats would

gather about the trap but would not go in; it seemed I could not get them, and I must have them in order to connect this year's group with other years; after two weeks of this I wrote, in a hurry, for some nets, and placed one net just where this trap had been; placing the trap among the shrubs close under my window. To my surprise the White-throats began to go freely into the trap in its new location, only fifty feet distant but in more dense shrubbery, so that I banded many of them. This slight change of location made all the difference.

Among migrants the Myrtle Warblers are interesting as they, like the White-throated Sparrows, go nearly or quite to Canada for the summer.

No. 27290. Myrtle Warbler (*Dendroica coronata*)

1917. Banded February 28 at Station C.

1920. Taken March 7 at Station C, and March 11 at D.

1921. Taken March 1 at Station D, and March 3 at Station B, and March 17 at C.

This little bird is now at least five years old and has made four trips to the north and return since receiving its band.

No. 45433. Myrtle Warbler (*Dendroica coronata*)

1920. Banded March 8 at Station AA, taken March 9 at AA, Mar. 10 at AA, Mar. 12 at AA and Mar. 15 at A.

1921. Taken February 21 at A, Feb. 23 at AA, Feb. 24 at C, Feb. 26 at AA.

No. 45478. Myrtle Warbler (*Dendroica coronata*)

1920. Banded March 12 at D, Mar. 14 at A, Mar. 18 at C.

1921. Taken February 22 at B, Feb. 23 at B and C, Feb. 24 at C twice, Feb. 25 at D and C, Feb. 26 at C, Feb. 27 at C, Feb. 28 at AA and B, March 1 at C twice, Mar. 2 at C and B, Mar. 3 at C and D, Mar. 4 at C, Mar. 5 at C.

No. 45493. Myrtle Warbler (*Dendroica coronata*)

1920. Banded March 13 at B.

1921. Taken February 21 at C, Feb. 25 at D.

Both Myrtle Warblers and Chipping Sparrows easily form the trap habit, and feed at or in the traps most of the time; I have even had them leave my hand and go straight to the next trap and into it, by the time I reached it in making my rounds.

Last year, after my absence, and having taken two Myrtle Warblers of 1917, I was much disappointed not to get even one of the 266 Chipping Sparrows banded in 1915 to 1917. But this year one did return to me, a four year bird.

No. 38839. Chipping Sparrow (*Spizella passerina passerina*)

1917. Banded March 26 at Station C, taken Mar. 27 at D.

1921. Taken March 24 at AA station.

This bird now five years old, winters farther south and comes up through here in March en route to the north.

No. 45448. Chipping Sparrow (*Spizella passerina passerina*)

1920. Banded March 10 at Station D, taken March 14 at B, Mar. 16 at C, Mar. 20 at B, Mar. 24 at B.

1921. Taken February 28 at C, March 11 at C, Mar. 23 at D, Mar. 28 at D, Mar. 30 at D; claw off middle toe left foot and claw off middle and hind toe right foot.

No. 45484. Chipping Sparrow (*Spizella passerina passerina*)

1920. Banded March 13 at Station A, taken Mar. 24 at C.

1921. Taken March 27 at Station C, Mar. 28 at C.

No. 45822. Chipping Sparrow (*Spizella passerina passerina*)

1920. Banded March 14 at B station, taken Mar. 17 at A.

1921. Taken February 26 at A, March 1 at C, Mar. 2 at B, Mar. 3 at D and AA, Mar. 4 at AA, Mar. 7 at B, right foot, diseased; Mar. 8 at C, Mar. 10 at C and A, Mar. 11 at C, Mar. 12 at B, Mar. 14 at AA.

No. 45876. Chipping Sparrow (*Spizella passerina passerina*)

1920. Banded March 19 at Station C.

1921. Taken March 19 at Station C.

No. 45881. Chipping Sparrow (*Spizella passerina passerina*)

1920. Banded March 20 at Station C, taken March 21 at B, Mar. 23 at C, Mar. 24 at D and B.

1921. Taken March 15 at Station C.

No. 45887. Chipping Sparrow (*Spizella passerina passerina*)

1920. Banded March 20 at D, taken Mar. 22 at D.

1921. Taken March 1 at D, Mar. 3 at C, Mar. 4 at C, Mar. 6 at D and B, Mar. 7 at C and B, Mar. 10 at B, Mar. 12 at C, Mar. 13 at D, Mar. 14 at B.

No. 45924. Chipping Sparrow (*Spizella passerina passerina*)

1920. Banded March 23 at AA, taken Mar. 24 at AA, and marked "one claw gone from right foot." Squealer.

1921. Taken March 3 at B and D, 25 at D. The

fact that I had recorded "all claws good" at the time of the 1921 capture and that Mr. L. R. Talbot who is acting for me this year has again caught the bird and finds the claws missing as in 1920, shows how easily one may err in observation.

DISEASED FEET OF CHIPPING SPARROWS:

About the same number, nearly ten per cent., of Chipping Sparrows were found this year with diseased claws. And this again illustrates the need of the observer making careful note of every unusual condition, for after several years I find myself making no progress in the real story of these diseased claws; it is now evident that by making careful note of the condition of each toe, on a diseased bird, every time it is taken, it will soon be possible to know something of how rapidly the disease changes or spreads, and to what degree the claws recover.

EYE COLOR OF TOWHEE:

This season for the first time I have observed carefully the eye color of the Towhees handled, and find all shades from very pale yellow, orange, to orange red and deep red. I had supposed these Towhees to be of the subspecies "*alleni*." I offer no explanation of the many shades of eye color as others are much better qualified to explain it.

The season of migration was very early, as was also the vegetation. The Myrtle Warblers were abundant in February but had nearly all gone, northward I suppose, by March first; while great numbers of Chipping Sparrows arrived by March first, a week or more ahead of the time they usually appear.

BIRD BANDING AT CLEVELAND, 1921

The season of banding at the farm near Cleveland was really divided into two parts; the nesting season from May 7 to August 7; and the fall migration from September 7 to October 31.

During the nesting season, the birds nesting nearby come frequently into the traps, and bring their young as soon as they are out of the nest; the traps are very closely watched at this time so not to keep setting birds from their nests.

Of the 275 new birds banded 83 were House Wrens, old or young, taken in the nest boxes.

Then during September and October 230 new birds were banded from traps, mostly Sparrows—Song, White-throated and White-crowned, and Juncos. The following "returns" were taken:

- No. 53034. Catbird: (*Dumetella carolinensis*)
 1919. Banded May 15 at Station B.
 1921. Taken May 19 at A with 53913, June 9 at A, 16 at AB.
- No. 53913. Catbird (*Dumetella carolinensis*)
 1920. Banded June 4 at Station A, taken August 1st at C, with young 53931, taken August 2 at B.
 1921. Taken May 15 at B with 52319.
 May 18 with 53034 at A (53034 a 1919 bird).
 Did one of these become the mate of 53913?
- No. 29465. Catbird (*Dumetella carolinensis*)
 1920. Banded June 22 at Station B.
 1921. Taken May 15 at A with 52322 and 52323 Sept. 24 at B.
- No. 53925. Thrasher (*Toxostoma rufum*)
 1920. Banded July 4 at Station B, taken July 5 at A.
 1921. Taken May 15 at Station B.
- No. 38461. Chimney Swift: (*Chaetura pelagica*)
 1916. June 6 down north chimney
 1917. June 12 " " "
 1921. June 9 " " " with 21214.
 Sept. 8 down south chimney.
 21214 no doubt a mate, as both birds were adults and the north chimney contained one nest with 5 eggs and a banded bird setting, no doubt one of this pair. (Proceedings Linnaean Society, N. Y., 1919, page 53.)
- No. 45947. Bluebird, male (*Sialia sialis sialis*)
 1920. Banded June 7, mate of 45934 on lawn.
 1921. June 2, Mate in Box 56, female, new, received band number 48791; three young 48792 to 48794.
- No. 45941. Bluebird, female (*Sialia sialis sialis*)
 1920. Banded June 6, mate of 45942 in orchard.
 1921. July 7 Mate in Box 13, male, new, received band number 21287, two young 21284 and 21285.
- No. 45348. Song Sparrow (*Melospiza melodia melodia*)
 1919. Banded July 3 at B, marked "young," July 11 at B.
 1921. Taken May 17 at A-B.

No. 46044. Song Sparrow (*Melospiza melodia melodia*)

1920. Banded July 25 at B, taken Aug. 6 at A, Oct. 2 at E.

1921. Taken May 14 at A with 48763 adult, possibly mate; May 17 at A, June 4 at A, June 5 at A, June 12 at A, June 16 at A, with 21226 young, and 21233 adult; June 19 with 21261 young, and June 19 at A with 21226 young; and June 20 at A with 21229, young.

It is probable that these young birds are the brood of 46044 and is 21233 the other parent? Perhaps we may know, if they appear together in the trap next year.

No. 46731. Song Sparrow (*Melospiza melodia melodia*)

1920. Banded Sept. 18 at Station B.

1921. Taken June 4 at B.

No. 46047. Song Sparrow (*Melospiza melodia melodia*)

1920. Banded July 25 Station B, Aug. 2 at B.

1921. Taken June 15 at A B.

No. 45989. Song Sparrow (*Melospiza melodia melodia*)

1920. Banded July 5 at B, taken June 14 at B.

1921. Taken July 7, band tight on the leg, changed band to 21282, leg not injured.

No. 46829. Chipping Sparrow (*Spizella passerina passerina*)

1920. Banded Oct. 14 at D.

1921. Taken July 31 at A B.

Still bearing in mind the purpose of this paper, to suggest to bird banders ways in which this method may be useful in the study of the domestic life of the birds, the following incidents may be interesting.

RATE OF GAIN IN WEIGHT OF YOUNG BIRDS:

Robin (*Planesticus migratorius migratorius*)

In a nest on my porch two young birds were hatched May 28, 1921, and a third hatched on May 29. This young bird, being a day late, was smaller than the first two, and it seemed of interest to weigh the three birds and note rate of gain; as one might expect the larger ones to grab all the food and the little one to waste away. They were given bands and the weighing began on May 30 when No. 55246 and 55247 were two days hatched, and No. 55248 only one day hatched.

	Weight in Grams			Daily Increase in		
	No.	No.	No.	Weight		
	55246	55247	55248	55246	55247	55248
May 30.....	261	271	129			
" 31.....	373	388	147	112	117	18
June 1.....	520	520	246	147	132	99
" 2.....	676	644	393	156	124	147
" 3.....	726	698	465	50	54	72
" 4.....	793	730	579	67	32	114
" 5.....	835	761	711	42	31	132
" 6.....	848	783	778	13	22	67
" 7.....	827	793	805	-20	10	27

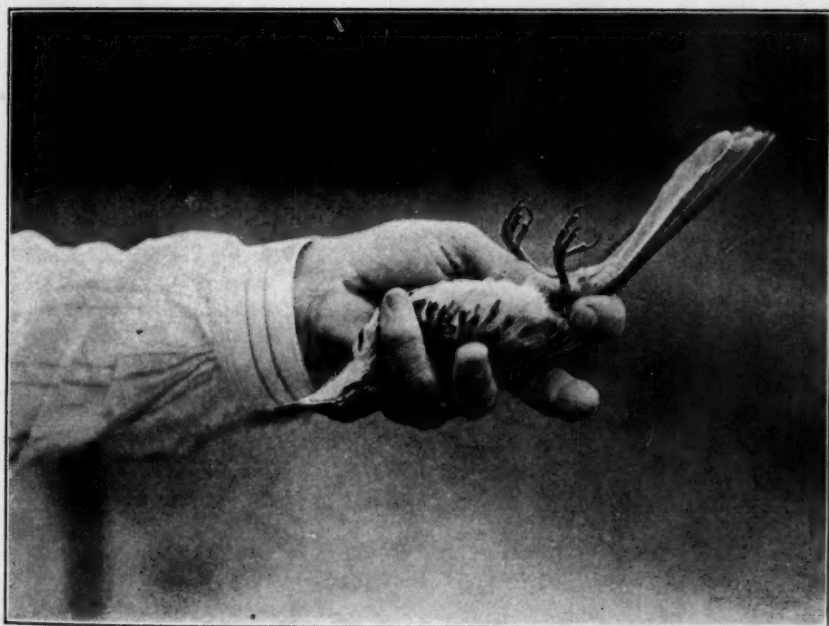
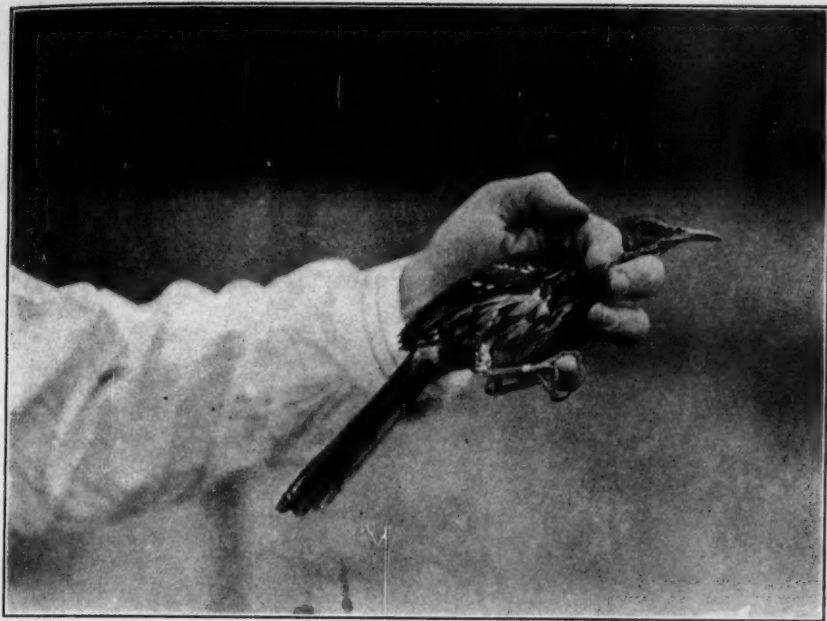
The birds were not weighed after June 7 because they were then ready to hop off the nest, having developed the sense of fear; though, being no longer disturbed, they remained in the nest until June 10 when the three came off the nest the same day.

It will be seen that the two larger birds gained rapidly during the first five days, then when the feathers began rapid growth the daily gain of weight was much less. The smaller bird made increasing gains in weight until, two days later than the larger birds, it began making feathers rapidly, but by that time it had about caught up in weight. When they all came off nest on June 10 no great difference in feathering could be noticed at the distance of about 20 feet.

MALNOURISHED CHILDREN AND HOUSE WRENS:

One of the writer's hobbies happens to be a charity, establishing nutrition clinics for the correction of malnourishment in children. It is not necessary to dwell upon the subject here except to say that among all children, all over the country, practically one-third are found to be malnourished; and these grow up to be the weak, inefficient adults, as found in the army tests during the war; and as are found in various industries. This is not due to poverty nor to lack of food, but nearly always to other causes, physical defects, poisoning tonsils, bad health habits, home conditions, or many other reasons.

I explain this because I weighed and photographed each day the fine healthy brood of House Wren in Box 59. Then in Box 53 a pair of Wrens (21264 and 21234) lost by accident all their



PHOTOGRAPHS FROM S. PRENTISS BALDWIN.

HANDLING A BIRD IN BANDING.



brood, except one young bird, and here I thought I could see how fast a youngster can grow with the entire attention of his two parents. Imagine my surprise to find that day by day this bird was one third behind the average weight of the brood in Box 59 for the corresponding day; he was in fact malnourished, and just as we find among children, it was not lack of food; in this case it was *lice* and after a dose of poultry lice killer on the 12th day, he made some gain. Compare the weights in grains as follows:

Day from Hatching	Healthy Bird		Malnourished Bird	
	Weight	Gain	Weight	Gain
2	30
3	41	11
4	67	26	55	..
5	89	22	77	22
6	108	19	72	5 (loss)
7	120	12	83	11
11	159	39	100	17
12	161 ¹	2	103	3
13	161	0	114	11
14	.. ²	..	125	9
15	120 ³	5 (loss)
16	flew		124	4
17	flew		flew ⁴	

EXPLANATION OF PLATES

From Photographs furnished by S. Prentiss Baldwin.

PLATE VIII, FIG. 1. HOLDING A BIRD FOR EXAMINATION. Pass the first two fingers over the bird's neck, holding the fingers closely enough so the neck is plainly felt between the fingers; the bird will rest quietly upon finding itself thus firmly held so that it can not push forward nor backward; and it will be more content if it is allowed to close the feet upon the little finger. It becomes very natural to slip the fingers over the neck of the bird, as one removes it from the gathering box.

PLATE VIII, FIG. 2. HOLDING A BIRD FOR BANDING. Draw the bird through the hand with the head in position to close the little finger on the neck to hold firmly; the thumb and forefinger are thus in correct position to hold the leg firmly while placing the band.

Do not grasp a wild bird about the body, as one may injure the bird in trying to prevent escape, when the bird makes an unexpected sudden struggle.

¹ Stopped gain in weight when making feathers rapidly.

² Too lively to handle.

³ Making some feathers and no gain, even a loss in weight.

⁴ Flew or rather flopped out of nest, a skinny, miserable specimen.

PLATE IX, FIG. 1. HOUSE TRAP. For description see 'Instructions for Bird Banding' by Frederick C. Lincoln, U. S. Department of Agriculture Circular 170, page 10. Notice the vestibule in the near right corner of the trap; the single outer door standing ajar; then the double inner doors standing ajar; birds will follow the food trail through into the trap; a small proportion of them will learn the way out.

An excellent trap, taking not only small birds, but also the birds too large for the government sparrow trap.

PLATE IX, FIGURE 2. NET OR DROP TRAP. This is a net of string; but wire netting can be used on the same frame; light wood frame 4" high; inch knobs on corners to prevent dropping tight to the ground in case a bird is caught by the frame. Notice door frame, and drop door, to drive the birds into the gathering box, which is also here shown. The net is dropped when the birds gather under it, by pulling the string, so as to jerk away the stick which props it up.

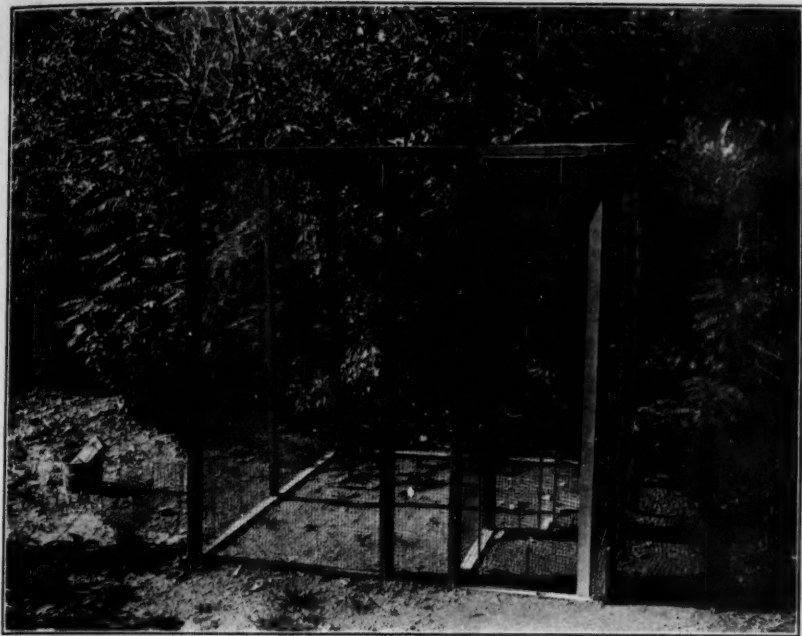
Williamson Building Cleveland, Ohio.

SOME BIRD NOTES FROM INDIAN BAY, MAN.

BY WILLIAM ROWAN.

THE following is a list of birds observed and collected at Indian Bay, Shoal Lake, Lake of the Woods, Man., by my wife and myself, with the Biological Station of the University of Manitoba as headquarters, during the period from June 15 to August 4, 1920. Indian Bay is in Manitoba, the Ontario boundary line running north and south a little way out in the bay and indicated on some of the islands. With the exception of some specimens secured at High Lake, (in Ontario), all were collected in Manitoba. The trip to this lake, as also the one to Falcon Lake, was undertaken primarily to study the avifauna of the huge sheet of muskeg lying between these sheets of water and the Biological Station. The Snake and the Falcon Rivers were the respective water courses followed on these two outings.

The Biological Station, founded this year (1920), is admirably situated for all kinds of field work. There are a number of distinct types of habitat in the immediate neighborhood, three of which are outstanding:—1. The Bay itself; 2. The forest encircling the Bay; 3. The muskeg beyond the forest and stretching forty miles or more to the north and west. Ornithologically the forest was the most fruitful.



PHOTOGRAPHS FROM S. PRENTISS BALDWIN.

1. HOUSE TRAP.

2. NET OR DROP TRAP.

1872

1872



1872

I have no doubt that the accompanying list is far from complete. By mid-June many of the birds were already silent and most of them were found by means of systematic and arduous tramps through incredibly dense forest studded with thousands of deadfalls but many must have escaped detection altogether. Of those still in song, specimens of all but one were secured.

My thanks are due to my wife Reta for her constant company and help. Despite the fact that countless thousands of mosquitoes found her exactly to their liking; that the going in the forest was often trying even to the hardened Indians, and that portages had to be made through marsh, floating muskeg and the densest forest tangle, she never failed to carry and use the small gun with excellent effect, or to hunt, hot, tired and mosquito-eaten, for lost birds.

My thanks are also due to Messrs. Drysdale and Dunn of Indian Bay for their frequent help and many courtesies. Also to Mr. P. A. Taverner for the kind determination of several subspecies from skins collected.*

1. *Gavia immer*. LOON. Two or three pairs only bred in the Bay. They were also found in small numbers on the various lakes. By the middle of July both young and old were flying and beginning to move about generally.

2. *Larus argentatus*. HERRING GULL.—Scarce in the Bay, though seen a number of times, mostly singly. They were plentiful in one corner of Falcon Lake, adults and young, and probably bred here, but our visit was not made till the end of July. Since no specimens were collected, identification may be considered uncertain by some readers of these notes. The birds were, however, certainly not Ring-billed Gulls, and the young conformed with the typical immature Herring Gull plumage, not that of the California Gull.

3. *Sterna hirundo*. COMMON TERN.—On the evening of July 18 some twelve or fifteen Common Terns flew over the station in a westerly direction at a great height. For nearly a week later similar flocks crossed over in the same direction every evening. Subsequently, with the exception of two individuals observed feeding in the bay, no more were seen. The notes so characteristic of this species were heard on each occasion and hence identification was certain.

4. *Hydrochelidon nigra surinamensis*.^{*} BLACK TERN.—A strong breeding colony of these birds was situated at the west end of Snake Lake, a small lake about two miles in length and a mile from the station.

* Birds marked thus were collected, the remainder observed.

Though this lake appeared to be suited in every way to the feeding habits of these birds, the majority did their fishing in Indian Bay. As soon as the young were strong on the wing (the end of July) they were escorted to the Bay, where the whole colony roosted overnights on a small rocky island. Snake Lake was crowded with wild rice which may have proved an obstacle to fishing in its waters.

5. *Phalacrocorax a. auritus*. DOUBLE-CRESTED CORMORANT.—The first of these birds were seen about the middle of July, after which they became more frequent and sometimes passed over in parties of ten or twelve.

6. *Anas platyrhynchos*.* MALLARD.—Found breeding in the reedy corners of the Bay and lakes, and in the small swamps. Some may have bred in the muskeg, but we got no evidence. Mallards, and indeed all other ducks, were scarce in the neighborhood, owing, no doubt, to the persistent shooting by the Indians throughout the year.

7. *Querquedula discors*. BLUE-WINGED TEAL.—Several times noted on the Falcon River and on Falcon Bay.

8. *Dafila acuta*. PINTAIL.—A single bird was seen flying over the muskeg late in July.

9. *Marila* sp. SCAUP DUCK (LESSER?).—Noted on Falcon Bay only, but a number of times and the species may have bred here.

10. *Oidemia perspicillata*. SURF SCOTER.—Seen twice on Falcon Bay. The bird behaved as though she had young in the reeds, always returning when put up. For this reason she was not collected.

11. *Branta c. canadensis*. CANADA GOOSE.—Two of these birds were put up from a small marsh on the morning of July 6.

12. *Botaurus lentiginosus*.* BITTERN.—Breeding in all the marshes and possibly in the muskeg, though it was not till late in the season that they were noted here, when the families had dispersed and the young were flying well and feeding themselves.

13. *Ardea h. herodias*. GREAT BLUE HERON.—Only three pairs of these beautiful birds were located, one on Indian Bay, one on Snowshoe Bay and the last at High Lake.

14. *Rallus virginianus*.* VIRGINIA RAIL.—Bred commonly in the marshes.

15. *Porzana carolina*.* SORA.—Abundant as a breeder in the marshes and in the reedy portions of the lakes.

16. *Coturnicops noveboracensis*. YELLOW RAIL.—A single Yellow Rail was put out of the reeds in the mouth of the Falcon River in Falcon Lake. The white wing patches made identification certain.

17. *Fulica americana*. COOT.—Found only in the largest marsh where several pairs bred.

18. *Gallinago delicata*. WILSON'S SNIPLE.—Not observed till the end of July when wader movements had begun. Several individuals were then noted here and there.

19. *Pisobia minutilla*. LEAST SANDPIPER.—
20. *Ereunetes pusillus*. SEMI-PALMATED SANDPIPER.—A mixed flock of these two sandpipers was noted on Snake Lake on July 30. Judging from the large percentage of pale rumps, the latter species well outnumbered the former.
21. *Limosa haemastica*. HUDSONIAN GODWIT.—A single bird of this species was seen on Snake Lake on July 30. It was still in its red plumage, although its precipitate flight as it twice passed the canoe and its white and black tail would have put identification beyond doubt.
22. *Totanus flavipes*. * YELLOW-LEGS.—Two of these birds were seen on July 22 flying up the railway track. Subsequently they were noted daily, as many as a dozen being seen together.
23. *Tringa s. solitaria*. SOLITARY SANDPIPER.—A single specimen was put out of the bed of the Snake River on June 27 a few miles down from High Lake.
24. *Actitis macularia*. * SPOTTED SANDPIPER.—On July 3 two adults were put up in the gravel pit. The one collected turned out to be a female almost ready to lay. These birds had evidently met with misfortune elsewhere earlier in the season and were hunting for new quarters. A single young one with down still adhering was collected while flying over the canoe on Falcon Lake at the end of July. Another was seen, also towards the end of July on one of the islands in Indian Bay. These were the only birds of their kind noted.
25. *Oxyechus vociferus*. KILLDEER.—Only one nesting pair was located near the metre house. Towards the end of July the species became more or less plentiful.
26. *Charadrius meloda*. PIPING PLOVER.—A single bird seen on the shore of the Bay on July 24.
27. *Bonasa umbellus togata*. * CANADA RUFFED GROUSE.—Of general distribution and breeding freely. Most of the broods noted were numerically small.
28. *Cathartes aura septentrionalis*. * TURKEY BUZZARD.—It is difficult to estimate the abundance of these birds on account of their extensive peregrinations in search of food. They were constantly seen on Indian, Snowshoe and Falcon Bays. Also at High Lake.
29. *Circus hudsonius*. MARSH HAWK.—A fairly plentiful breeder in the whole district.
30. *Accipiter velox*. SHARP-SHINNED HAWK.—Seen only twice on the way to High Lake.
31. *Buteo platypterus*. BROAD-WINGED HAWK.—This species appears to be a breeder here. It was noted in June and July in the wilder parts of the muskeg, where the rocky "islands" were plentiful and thickly clothed with huge trees. Another hawk, which may have been the Red-shouldered or the Swainson's, frequented the same ground.
32. EAGLE.—Two young eagles, whether Bald or Golden could not be ascertained as they kept out of range, were seen on High Lake.

33. *Falco s. sparverius*. SPARROW HAWK.—Breeding here and there, though not abundantly.

34. *Pandion haliaetus carolinensis*. OSPREY.—Several pairs bred in the district.

35. *Bubo virginianus*. GREAT HORNED OWL.—Owls were apparently rare here. This species and the next were the only ones seen or heard, one pair—almost certainly breeding—of each. The loud sonorous hoot of this owl was heard almost nightly throughout the stay, always around the same spot. This was on the densely forested edge of the muskeg and though two hunts were made for him, nothing more than a newly moulted feather was found.

36. *Surnia ulula caparoch*. HAWK OWL.—One of these birds was seen six or seven times during the stay, at the bathing beach, always when we were in the water and the gun on land. Twice it came over our heads at a low level, which, if tantalizing, at all events made identification certain.

37. *Coccyzus erythrophthalmus*.* BLACK-BILLED CUCKOO.—A single pair of these birds was found breeding, though the specimen collected, an adult female, towards the end of July, was secured nearly a mile from the breeding spot and may have come from elsewhere. The only other of this species seen, was noted by Mr. Dunn in the grave yard a few days later

38. *Ceryle a. alcyon*.* BELTED KINGFISHER.—Bred in large numbers. In the big gravel pit alone over a dozen nesting holes of the year were found. This pit was almost a quarter of a mile from the lake. The Lake's edge, on account of its rocky nature, offered but few suitable sights and most of the nests were inland, some nearly a mile from the open water.

39. *Dryobates v. villosus*.* HAIRY WOODPECKER.—Nesting fairly plentifully, though in nothing like the numbers of the Downy and the Sapsucker. *D. v. leucomelas*, if it occurs here, was not collected or detected.

40. *Dryobates pubescens medianus*.* DOWNY WOODPECKER.—Probably the most abundant of the Woodpeckers, although the Sapsucker rivalled it closely. The Downy was however of wider distribution, nesting everywhere where suitable trees were to be found.

41. *Picoides arcticus*.* ARCTIC THREE-TOED WOODPECKER.—Not noted on Indian Bay, but found breeding on High Lake. It was noted on Falcon Lake by Prof. De Lury and his brother early in August, although we failed to find it there a little earlier.

42. *Sphyrapicus v. varius*.* YELLOW-BELLIED SAPSUCKER.—Breeding abundantly though mainly confined to the rocky areas. It was never found on the edge of the muskeg like the Downy.

43. *Phloeotomus pileatus abieticola*.* NORTHERN PILEATED WOODPECKER.—Breeding at the Bay and at High Lake, though scarce and apparently confined to the big tree areas.

44. *Colaptes auratus luteus*.* NORTHERN FLICKER.—Breeding fairly commonly throughout the district and general in distribution.

5. *Chordelles v. virginianus*.* NIGHTHAWK.—An abundant breeder throughout on rocky ground. Straggling flocks were formed towards the end of July, the birds becoming more and more diurnal.

46. *Chaetura pelagica*.* CHIMNEY SWIFT.—This species nested in the chimney of one of the buildings and on the railway water tank. Never noted far from these two centres.

47. *Archilochus colubris*.* RUBY-THROATED HUMMINGBIRD.—Abundant everywhere.

48. *Tyrannus tyrannus*.* KINGBIRD.—A common breeder on the edge of the Bay, lakes and rivers and particularly on the muskeg.

49. *Sayornis phoebe*.* PHOEBE.—The most abundant of the Flycatchers round the station where nesting sites were plentiful if not suitable. One nest kept under observation fell four times during the season. The fifth attempt was in progress when we left. Many chose unfortunate spots, but all persisted to the bitter end in trying to achieve the impossible rather than use a new site. Many of the successful ones reared two broods from the same nest. Even in remote spots this bird was plentiful, fallen tree trunks providing the majority of nesting sites.

50. *Nuttallornis borealis*.* OLIVE-SIDED FLYCATCHER.—Found only on the edge of one of the marshes where the regular presence of the birds led one to believe that they had a nest, but this was never found.

51. *Myiochanes virens*. WOOD PEWEE.—But few of these birds were located, all in the deeper woods.

52. *Empidonax flaviventris*.* YELLOW-BELLIED FLYCATCHER.—A single specimen was observed and subsequently collected on one of the islands in the Bay.

53. *Empidonax minimus*.* LEAST FLYCATCHER.—Commoner than either of the three foregoing species, but by no means abundant.

54. *Cyanocitta c. cristata*.* BLUE JAY.—Breeding here and there. Not plentiful.

55. *Perisoreus c. canadensis*. CANADA JAY.—Three of these birds were seen while portaging from Snake Lake to the Falcon River on July 29. The portage necessitated two trips and both guns were unfortunately left for the second load.

56. *Corvus b. brachyrhynchos*.* CROW.—Abundant everywhere. Small flocks were forming in the middle of July, but many young were still being fed at the close of that month.

57. *Molothrus a. ater*.* COWBIRD.—Abundant. Flocking began early in July when the old birds left the district. Only two young were observed, one on the wing, accompanied by Chipping Sparrows, the other still in the nest of a White-throated Sparrow. The latter disappeared before he was fully fledged. The mortality amongst ground-nesters was enormous. Not a single ground nest found, and kept under observation, (with the exception of Grouse) produced young far enough advanced to

fly. Either the eggs or the chicks were in every case destroyed by squirrels or chipmunks which were very abundant. (It may be of interest to note in this connection that the Flying Squirrel was never observed here.)

58. *Agelaius phoeniceus*.* RED-WINGED BLACKBIRD.—This and the Grackle were the most plentiful of the Blackbirds, the present species being of more general distribution. They were found nesting in all the marshes and throughout the muskeg where bushes or reeds occurred. Young began to fly from the last week of June.

59. *Icterus galbula*.* BALTIMORE ORIOLE.—Fairly plentiful. Several pairs bred round the buildings and a few were noted here and there in the bush.

60. *Quiscalus quiscula aeneus*.* BRONZED GRACKLE.—A large colony of these birds bred on the edge of a small marsh about half a mile from the station. A solitary pair was also noted on High Lake.

61. *Hesperiphona vespertina* (subsp ?).* EVENING GROSBEEK.—As already recorded in 'The Auk,' the e birds no doubt bred here, though in very limited numbers. On July 24 an old bird with a single young one still being fed was noted on one of the islands but not secured. On the 26th, however, a family was found on the main land and a young bird collected and later another and an adult female.

62. *Carpodacus p. purpureus*.* PURPLE FINCH.—Of general distribution though not very plentiful.

63. *Astragalinus t. tristis*.* GOLDFINCH.—Plentiful immediately around the station and also further afield.

64. *Spinus pinus*.* PINE SISKIN.—Frequently seen, mostly in the company of Goldfinches, round the buildings. Also noted at Falcon Lake.

65. *Poocetes g. gramineus*.* VESPER SPARROW.—Only a single pair was found nesting in the gravel pit.

66. *Passerculus sandwichensis* (subsp?). SAVANNAH SPARROW.—Not abundant but of fairly general distribution. No specimens were collected and the subspecies not determined.

67. *Zonotrichia albicollis*.* WHITE-THROATED SPARROW.—With the doubtful exception of the Song, by far the most abundant of the sparrows. Found nesting everywhere in the wooded areas.

68. *Spizella p. passerina*.* CHIPPING SPARROW.—Thinly but generally distributed. Two broods appeared to be the rule with this species.

69. *Spizella pallida*. CLAY-COLOURED SPARROW.—Two or three pairs only were found, all in the vicinity of the station.

70. *Junco h. hyemalis*.* SLATE-COLOURED JUNCO.—Several pairs were located, though they were by no means plentiful.

71. *Melospiza melodia juddi*.* SONG SPARROW.—Very abundant and breeding everywhere.

72. *Melospiza georgiana*.* SWAMP SPARROW.—Plentiful in the muskeg and in the swamps.

73. *Passer domesticus*. HOUSE SPARROW.—A few pairs nested round the railway buildings. Also noted at the Indian school on Snowshoe Bay.

74. *Zamelodia melanocephala*.* ROSE-BREADED GROSBEEK.—A few pairs bred here and there. Young as well as adults were secured.

75. *Piranga erythromelas*.* SCARLET TANAGER.—Noted only on Falcon Bay where a family of three or four was being escorted by its parents.

76. *Petrochelidon lunifrons*. CLIFF SWALLOW.—A single bird of this species was observed sitting on the telephone wires late in July.

77. *Hirundo erythrogastra*. BARN SWALLOW.—The bi-weekly train came in one evening in July with a freight car picked up from a siding and destined for Winnipeg the next day. This car held the nest of a pair of Barn Swallows. The parent birds arrived with the train and left with it again the next morning. These were the only birds of their kind observed.

78. *Iridoprocne bicolor*. TREE SWALLOW.—Abundant round the station and on the muskeg wherever trees occurred.

79. *Stelgidopteryx serripennis*.* ROUGH-WINGED SWALLOW.—A small colony of these birds nested in the east bank of the large gravel pit. There were about twenty nests. No Bank Swallows were apparently included. They were early in their departure and had left the place entirely by the end of July.

80. *Bombycilla cedrorum*.* CEDAR WAXWING.—Generally distributed in some numbers throughout the district.

81. *Vireosylva olivacea*.* RED-EYED VIREO.—Extreme y abundant and found nesting everywhere.

82. *Vireosylva g. gilva*. WARBLING VIREO.—Found here and there but not plentiful. Only a single nest was found.

83. *Mniotilta varia*.* BLACK-AND-WHITE WARBLER.—One of the most abundant of the warblers and general in its distribution.

84. *Dendroica a. aestiva*.* YELLOW WARBLER.—Fairly abundant, but apparently confined as a nester to the drier parts.

85. *Dendroica c. caerulescens*. BLACK-THROATED BLUE WARBLER.—Only a single specimen of this beautiful bird, a male, was seen in some thick brush near the station in the middle of June. It was so close that shooting was out of the question while the growth was too thick for the bird to remain in view at anything like a reasonable distance. This annoying contingency frequently arose with the warblers.

86. *Dendroica magnolia*.* MAGNOLIA WARBLER.—A scarce breeder. Only two birds, both males, were seen or heard. One always sang from the same spot and no doubt had his mate and nest there.

87. *Dendroica pensylvanica*.* CHESTNUT-SIDED WARBLER.—Abundant and found breeding everywhere.

88. *Dendroica castanea*.* BAY-BREADED WARBLER.—A single pair

bred near the station. A family was also noted on Falcon Lake at the end of July.

89. *Dendroica fusca*.* BLACKBURNIAN WARBLER.—Except for the song of a single male heard for weeks at the same spot, where he presumably owned a nest, the note was never heard, nor were other specimens seen.

90. *Dendroica vigorsi*.* PINE WARBLER.—Only three or four birds of this species were noted throughout the stay.

91. *Dendroica p. palmarum*.* PALM WARBLER.—Only seen on one of the islands, where it bred and a young bird was collected.

92. *Seiurus auropallidus*. OVEN-BIRD.—Thinly distributed over most of the area.

93. *Seiurus n. noveboracensis*. WATER-THRUSH.—A pair bred and reared their young successfully on one of the islands. Not noted elsewhere.

94. *Oporornis philadelphia*.* MOURNING WARBLER.—A single specimen of this species was noted near the station in the middle of June and a family party was seen near the same place towards the close of July.

95. *Geothlypis t. trichas*.* MARYLAND YELLOW-THROAT.—Fairly abundant on the edge of marshes and in the muskeg where bushes occurred.

96. *Setophaga ruticilla*.* REDSTART.—Extremely abundant and of general distribution.

97. *Dumetella carolinensis*.* CATBIRD.—A few pairs bred round Falcon and Indian Bays.

98. *Troglodytes a. aedon*.* HOUSE WREN.—Thinly but fairly generally distributed.

99. *Cistothorus stellaris*.* SHORT-BILLED MARSH WREN.—Plentiful on the floating muskeg.

100. *Telmatodytes p. palustris*.* LONG-BILLED MARSH WREN.—Abundant in some of the marshes.

101. *Sitta canadensis*. RED-BREASTED NUTHATCH.—Only noted once, on the edge of Indian Bay.

102. *Penthestes a. atricapillus*.* CHICKADEE.—A fairly abundant breeder of general distribution.

103. *Hylocichla f. fuscescens*.* VEERY.—The most abundant of the Thrushes and of general distribution.

104. *H. ustulata swainsoni*.* OLIVE-BACKED THRUSH.—Not nearly as plentiful as the Veery, but found throughout the district, particularly on the islands.

105. *H. guttata pallasi*.* HERMIT THRUSH.—The scarcest of the Thrushes and only noted on a small area near the station, where they were deemed to breed from the constant singing of the males.

106. *Planesticus m. migratorius*. ROBIN.—Thinly but generally distributed throughout.

Univ. of Alberta, Edmonton, Alta., Canada.

BIRDS OF BOWLING GREEN, KENTUCKY.

BY GORDON WILSON.

So far as I know, no complete résumé of bird life in this section has ever been made. Could I have found just such a report when I began my observations, I would have been spared years of uncertainty and the discouragement which comes from not having any means of checking up one's knowledge. I have prepared this article partly as a summary for my own guide in the future and partly as a suggestion to others who may take up this fascinating study in this section.

Bowling Green is located on the Big Barren River, 110 miles south of Louisville, Kentucky, and 75 miles north of Nashville, Tenn. The town is built on and around two knobs which are three miles east of the easternmost range of the knobs. Many of these hills are still wooded, and are bordered by fields covered with shrubby cedars, hackberries, elms, and persimmons, with wild tangles of greenbriars and honeysuckle. The bottoms, for the most part, are in cultivation, except a narrow strip along the banks of the water courses. There are a few small ponds in this section, but since they are surrounded usually by limestone banks, there is little or no growth plants. The river, with its sheer limestone cliffs, affords little attraction for water birds. Within a mile of the town is Covington's Woods, the greatest place I have ever seen for warblers in the migrating season. Pea Ridge, the last ridge of the knobs, is the place where I have found the members of the goatsucker family, the Pileated Woodpecker, and other retiring birds. Normal Heights, one of the isolated knobs and the site of the Western Kentucky State Normal School, was until the bag-worm plague of 1918, covered with hoary old cedars, the favorite nesting place of the Bronzed Grackle, the Cardinal, and the Robin. One day in 1912, I found 75 nests of the Bronzed Grackle on this knob alone.

My observations have been made up largely by means of field trips, taken weekly or oftener, my average for a year being 60 to 75 trips. In the migrating season I have often gone on trips

four or five times in a single week. Whenever I have seen anything unusual or about which I have been in doubt, I have consulted Professor J. H. Clagett, formerly observer for the Biological Survey, and Mr. Carl D. Herdman, a prominent local citizen who has a very comprehensive ornithological library. I have been greatly benefited by the bulletins prepared by Mr. W. L. McAtee, now of the Biological Survey, on the birds near Bloomington, Indiana, and that by Mr. Albert F. Ganier, Curator of the Tennessee Ornithological Society, on the birds of Middle Tennessee. I desire to use this opportunity to thank these two gentlemen for their aid in my study.

My observations were made between the years 1912 and 1921, and are confined, unless otherwise stated, to a territory about ten miles in diameter, with Bowling Green as its center.

Larus argentatus. HERRING GULL.—One seen over Normal Heights at very close range, April 19, 1918.

Anas platyrhynchos. MALLARD.—Rare migrant. February 26–May 5; November 28–December 24.

Querquedula discors. BLUE-WINGED TEAL.—Rare spring migrant. April 3–20.

Aix sponsa. WOOD DUCK.—One seen April 5, 1918; another, July 30, 1921. Apparently it used to summer here in numbers, judging by reports from fishermen along the river.

Marila valisineria. CANVAS-BACK.—One seen on the river in company with six Ruddy Ducks, April 7, 1919.

Oldemia deglandi. WHITE-WINGED SCOTER.—Numbers seen on Rich Pond, eight miles south of here, April 6, 1912. I studied this flock for more than an hour with high-power binoculars.

Erismatura jamaicensis. RUDDY DUCK.—Six seen on river, April 7, 1919; one seen April 18, 1921.

Branta canadensis canadensis. CANADA GOOSE.—Common migrant. February 26–May 7; September 22–November 12.

Ixobrychus exilis. LEAST BITTERN.—One seen May 1, 1920.

Ardea herodias herodias. GREAT BLUE HERON.—One seen April 12, 1919; one killed near here September 25, 1921. Formerly rather common here.

Florida caerulea. LITTLE BLUE HERON.—A very rare summer resident. April 8–September 21.

Butorides virescens virescens. GREEN HERON. Fairly common summer resident, more abundant in migrations. April 18–September 23.

Rallus virginianus. VIRGINIA RAIL.—One seen September 18, another September 21, 1918.

Porzana carolina. CAROLINA RAIL OR SORA. Two seen May 4, 1918, both wounded by flying into telephone wires at night.

Ionornis martinicus. PURPLE GALLINULE.—One shot near town in April, 1916.

Gallinula galeata. FLORIDA GALLINULE.—One seen on the river, Aug. 24, 1921.

Fulica americana. AMERICAN COOT.—Rare spring migrant. March 30–May 5.

Philohela minor. AMERICAN WOODCOCK.—Several seen, April 18–23, 1921.

Gallinago delicata. WILSON SNIPES.—Fairly common migrant. March 9–May 11; August 24–November 2.

Pisobia maculata. PECTORAL SANDPIPER.—Rare migrant. May 1–3; August 23–October 8.

Pisobia minutilla. LEAST SANDPIPER.—Rare migrant. April 15–May 14; Aug. 4–Sept. 7.

Ereunetes pusillus. SEMIPALMATED SANDPIPER.—One seen September 4, 1919; another May 1, 1920; another, September 15, 1921.

Totanus melanoleucus. GREATER YELLOW-LEGS.—Rare spring migrant. April 10–May 14.

Totanus flavipes. LESSER YELLOW-LEGS.—Rare migrant. March 27–May 7; September 15–October 8.

Tringa solitaria solitaria. SOLITARY SANDPIPER.—Fairly common migrant, more abundant in the fall. April 10–May 17; July 28–October 11.

Actitis macularia. SPOTTED SANDPIPER.—Rare summer resident. March 29–October 13.

Oxyechus vociferus. KILLDEER.—Resident; common in summer, rare in winter.

Colinus virginianus virginianus. BOBWHITE. Resident. Becoming rather rare, though formerly common.

Zenaidura macroura carolinensis. Mourning Dove. Resident. Abundant in summer, fairly common in winter.

Cathartes aura septentrionalis. TURKEY VULTURE. Resident. Common in summer, rare in winter.

Coragyps urubu. BLACK VULTURE. Resident. Common to abundant, especially around the slaughter house on Jennings Creek.

Circus hudsonius. MARSH HAWK. Rare winter resident. September 4–March 23.

Accipiter velox. SHARP-SHINNED HAWK. Rare resident.

Accipiter cooperi. COOPER'S HAWK. Rare resident.

Astur atricapillus atricapillus. AMERICAN GOSHAWK.—One seen at very close range on Normal Heights, February 2, 1918. Apparently brought here by the rigorous winter.

Buteo borealis borealis. RED-TAILED HAWK. Very rare resident.

Buteo lineatus lineatus. RED-SHOULDERED HAWK. Very rare resident.

Buteo platypterus. BROAD-WINGED HAWK. Very rare winter resident. September 7-March 29.

Aquila chrysaetos. GOLDEN EAGLE. One captured in April, 1919, near here and exhibited by the local chapter of the Red Cross.

Falco sparverius sparverius. SPARROW HAWK. Fairly common resident.

Tyto pratincola. BARN OWL. One shot near town in 1914 and preserved by a local taxidermist; another captured alive in August, 1921.

Asio wilsonianus. AMERICAN LONG-EARED OWL.—One seen March 14, another April 13, 1918.

Syrnium varia varia. BARRED OWL. Very rare resident.

Otus asio asio. SCREECH OWL. Fairly common resident.

Bubo virginianus virginianus. GREAT HORNED OWL. Very rare resident.

Coccyzus americanus americanus. YELLOW-BILLED CUCKOO.—Common summer resident, a little commoner in the spring migration. April 4-Oct. 6.

Coccyzus erythrophthalmus. BLACK-BILLED CUCKOO.—Fairly common migrant, seen nearly every year in both spring and fall. April 24-May 18; September 18-27.

Ceryle alcyon alcyon. BELTED KINGFISHER.—Rather rare and erratic. It did not winter here in 1915-1916, 1916-1917, 1919-1920, but was seen during the other winters. Only a few pairs are ever seen here in the nesting season.

Dryobates villosus villosus. HAIRY WOODPECKER. Common resident, a little more common in winter.

Dryobates pubescens pubescens. SOUTHERN DOWNY WOODPECKER.—Common resident, more common in winter.

Sphyrapicus varius varius. YELLOW-BELLIED SAPSUCKER. Fairly common winter resident until the winter of 1919-1920, since when it has been very rare. September 23-May 17.

Phloeotomus pileatus pileatus. PILEATED WOODPECKER.—Rather rare resident, found only along Pea Ridge and in other similar places.

Melanerpes erythrocephalus. RED-HEADED WOODPECKER. Abundant summer resident. The bird puzzles me by its not remaining here through the winter. In nearly all other parts of the state it is to be found at all times of the year. March-October 9.

Centurus carolinus. RED-BELLIED WOODPECKER. Common resident, commoner in fall.

Colaptes auratus auratus. FLICKER. Resident. Common in summer, fairly common in winter.

Antrostomus carolinensis. CHUCK-WILL'S-WIDOW. Fairly common summer resident April 25-Aug. 17.

Antrostomus vociferus vociferus. WHIP-POOR-WILL. Fairly common summer resident, but more restricted in range than the Chuck-will's-widow. April 6-July 25.

Chordeiles virginianus virginianus. NIGHTHAWK. Common summer resident. April 17-October 20.

Chaetura pelagica. CHIMNEY SWIFT. Abundant summer resident and exceedingly abundant in the fall migration. Thousands in late summer and early fall roost in the large chimneys at the State Normal and at Davidson Brothers' Wholesale House. April 1-October 16.

Archilochus colubris. RUBY-THROATED HUMMINGBIRD. Fairly common summer resident. I saw more around one blossoming horse-chestnut tree on May 1, 1920, than I usually see in an entire season. April 22-October 15.

Tyrannus tyrannus. KINGBIRD. Common summer resident. April 19-September 23.

Myiarchus crinitus. CRESTED FLYCATCHER. Common summer resident. April 19-September 19.

Sayornis phoebe. PHOEBE. Fairly common summer resident. Especially fond of the cliffs along the river and the entrances to the caves as building sites. March 9-October 23.

Nuttallornis borealis. OLIVE-SIDED FLYCATCHER. Rare migrant. The first one I ever saw here flew down a chimney into an empty cook-stove. May 11-23; September 16-October 25.

Myiochanes virens. WOOD PEWEE. Common summer resident. April 21-October 8.

Empidonax virescens. GREEN-CRESTED OR ACADIAN FLYCATCHER.—Fairly common summer resident, especially along the river above town April 21-October 4.

Empidonax minimus. LEAST FLYCATCHER. Rare migrant. It very seldom gives its distinctive call while it is here. April 1-May 14; September 7-September 28.

Otocoris alpestris praticola. PRAIRIE HORNED LARK. Common winter resident, sometimes almost abundant. July 28-May 11.

Cyanocitta cristata cristata. BLUE JAY. Common resident.

Corvus brachyrhynchos brachyrhynchos. CROW. Resident. Common in summer, abundant in winter. There are three great crow roosts in my territory: one on the Nashville Pike near Lost River, about three miles from town; another on Jennings Creek near the slaughter house; and another on the Morgantown Pike, about four miles from town.

Dolichonyx oryzivorus. BOBOLINK. Common spring migrant, very abundant in 1917 and 1921. I have never seen or heard of Bobolinks in the fall migration. April 27-May 17.

Molothrus ater ater. COWBIRD. Common summer resident, frequently very abundant in the fall. In 1915 I found a Cowbird's egg in the nest of a Wood Thrush, the only time I have ever seen one in the

nest of a larger bird. As the nest was broken up before incubation was completed I could not observe the struggle between the parasite and the real owners of the nest. March 5–October 16.

Agelaius phoeniceus phoeniceus. RED-WINGED BLACKBIRD. Common summer resident, abundant in migrations. March 1–November 10.

Sturnella magna magna. MEADOWLARK. Common resident, a little less common in winter.

Icterus spurius. ORCHARD ORIOLE. Common summer resident. April 17–August 24.

Icterus galbula. BALTIMORE ORIOLE. Common summer resident. April 12–September 17.

Euphagus carolinus. RUST BLACKBIRD. Fairly common migrant. April 3–23; August 17–December 7.

Quiscalus quiscula aeneus. BRONZED GRACKLE. Abundant migrant and common summer resident. Only a small number nest here now as compared with five years ago, before many of the cedars of their breeding-places were killed by the bagworm plague. A flock was reported seen January 22, 1921. February 4–November 27.

Carpodacus purpureus purpureus. PURPLE FINCH. Formerly a very abundant winter resident, but for the past three winters almost rare. October 16–May 8.

Loxia curvirostra minor. CROSSBILL. Three seen and many others heard, January 19, 1920.

Astragalinus tristis tristis. AMERICAN GOLDFINCH. Common resident.

Poocetes gramineus gramineus. VESPER SPARROW. Almost abundant migrant. March 12–May; October 7–October 30.

Passerculus sandwichensis savanna. SAVANNAH SPARROW. Common migrant. May 1–May 11; October 8–October 24.

Ammodramus savannarum australis. GRASSHOPPER SPARROW.—Common summer resident, more common in the spring migration. March 26–September 4.

Passerherbulus henslowi henslowi. HENSLOW SPARROW.—Fairly common migrant. April 23–May 16; September 6–October 24.

Chondestes grammacus grammacus. LARK SPARROW. Migrant. Common in spring but seen only once in the fall, October 18, 1919. This bird nests commonly in counties of this state farther west. March 27–May 5.

Zonotrichia leucophrys leucophrys. WHITE-CROWNED SPARROW. Abundant winter resident, apparently becoming more abundant. Found in fewer places than is the White-throated Sparrow but more abundant. October 11–May 11.

Zonotrichia albicollis. WHITE-THROATED SPARROW. Common winter resident. September 23–May 17.

Spizella monticola monticola. TREE SPARROW. Never seen

here until the hard winter of 1917-1918, but since then it has been a common winter resident, becoming more common each winter, and widely distributed in its range. October 21-March 12

Spizella passerina passerina. CHIPPING SPARROW. Resident. Common in summer, rare in winter.

Spizella pusilla pusilla. FIELD SPARROW. Common summer resident, rather rare in winter.

Junco hyemalis hyemalis. SLATE-COLORED JUNCO. Abundant winter resident. October 4-April 19.

Peucaea aestivalis bachmanni BACHMAN'S SPARROW. Common summer resident though restricted in its range. March 26-August 22.

Melospiza melodia melodia. SONG SPARROW. Common winter resident. October 7-April 27.

Melospiza lincolni lincolni. LINCOLN SPARROW. Fairly common migrant. March 8-May 7; September 20-October 24.

Melospiza georgiana. SWAMP SPARROW. Rare migrant April 5-May 8; October 13-14.

Passerella iliaca iliaca. FOX SPARROW. Rare migrant but regularly seen. February 12-March 24; October 13-November 10.

Pipilo erythrophthalmus erythrophthalmus. TOWHEE. Resident. Common in summer, a little less common in winter.

Cardinalis cardinalis cardinalis. CARDINAL. Abundant resident.

Zamelodia ludoviciana. ROSE-BREASTED GROSBEAK. Fairly common migrant. April 20-May 15; September 19-October 13.

Guiraca caerulea caerulea. BLUE GROSBEAK. I have only one record: two seen in a shrub in the city, April, 1912.

Passerina cyanea. INDIGO BUNTING. Common summer resident. April 21-October 16.

Spiza americana. DICKCISEL. Common summer resident, but a little erratic, sometimes disappearing in mid-summer. April 29-August 22.

Piranga erythromelas. SCARLET TANAGER. Rare migrant, a full-plumaged male being rarely seen. April 18-May 19; September 6-September 30.

Piranga rubra rubra. SUMMER TANAGER. Common summer resident. April 2-September 26.

Progne subis subis. PURPLE MARTIN. Abundant summer resident, largely through the efforts of Mr. Carl D. Herdman, who has put up a great many martin boxes and has encouraged others to do so. March 15-September 25.

Petrochelidon lunifrons lunifrons. CLIFF SWALLOW. Rare summer resident, fairly common in the spring migration. March 24-September 18.

Hirundo erythrogastra. BARN SWALLOW. Fairly common summer resident, commoner in the migrations. April 20-September 17.

Iridoprocne bicolor. TREE SWALLOW.—Rare spring migrant. May 1–May 8.

Riparia riparia. BANK SWALLOW. Rare summer resident. April 8–September 6.

Stelgidopteryx serripennis. ROUGH-WINGED SWALLOW. One seen May 7, 1921.

Bombycilla cedrorum. CEDAR WAXWING.—Common winter resident, a little less common than it was before the hard winter of 1917–1918. Though it remains very late in the spring and returns sometimes in midsummer, I have never seen it in July or found its nest. Evidently it nests in the northern part of this state. August 17–June 12.

Lanius ludovicianus migrans. MIGRANT SHRIKE. Very rare summer resident. One nest found in 1912. February 15–October 24.

Vireosylva olivacea. RED-EYED VIREO. Common summer resident. April 8–September 27.

Vireosylva gilva gilva. WARBLING VIREO. Common summer resident. April 8–October 8.

Lanivireo flavifrons. YELLOW-THROATED VIREO. Fairly common summer resident, found only in deep woods and other secluded places. April 19–September 29.

Lanivireo solitarius solitarius. BLUE-HEADED VIREO. Very rare summer resident. May 8–November 4.

Vireo griseus griseus. WHITE-EYED VIREO. Common to abundant resident. April 7–October 10.

Mniotilta varia. BLACK AND WHITE WARBLER. Fairly common summer resident, March 29–October 6.

Protonotaria citrea. PROTHONOTARY WARBLER. Fairly common summer resident. April 5–September 28.

Helmitheros vermivorus. WORM-EATING WARBLER.—Rare spring migrant. April 3–May 9.

Vermivora pinus. BLUE-WINGED WARBLER. Rare migrant. April 19–May 19; September 25–October 5.

Vermivora rubricapilla rubricapilla. NASHVILLE WARBLER. Fairly common migrant. May 1–May 19; August 31–October 1.

Vermivora peregrina. TENNESSEE WARBLER. Abundant migrant, especially in the fall. April 19–May 10; September 7–October 24.

Compsothlypis americana usneae. NORTHERN PARULA WARBLER.—Rare spring migrant. May 3–19.

Dendroica tigrina. CAPE MAY WARBLER.—Fairly common migrant. April 19–May 13; September 17–October 14.

Dendroica aestiva aestiva. YELLOW WARBLER. Fairly common summer resident. April 13–August 8.

Dendroica caerulescens caerulescens. BLACK-THROATED BLUE WARBLER.—Rare migrant, the full-plumaged male especially. May 7–May 13; September 22–October 7.

Dendroica coronata. MYRTLE WARBLER.—Common winter resident and abundant migrant. September 5–May 19.

Dendroica magnolia. MAGNOLIA WARBLER.—Fairly common migrant. April 19–May 17; October 13.

Dendroica pensylvanica. CHESTNUT-SIDED WARBLER. Common to abundant migrant in spring, very rare in fall. April 18–May 11; Sept. 20.

Dendroica castanea. BAY-BREASTED WARBLER. Fairly common migrant. May 3–May 19; September 28–October 6.

Dendroica striata. BLACKPOLL WARBLER.—Common migrant, nearly always being the last of the warblers to arrive in spring. May 5–22; September 17–October 3.

Dendroica fusca. BLACKBURNIAN WARBLER. Fairly common migrant. April 25–May 13; September 8–October 8.

Dendroica dominica albilora. SYCAMORE WARBLER.—Rare summer resident. I found a nest in a sycamore tree near the boatlanding three successive years, 1918–1920. March 27–October 7.

Dendroica virens. BLACK-THROATED GREEN WARBLER.—Common spring migrant, very abundant fall migrant. April 23–May 14; Sept. 7–October 16.

Dendroica vigorsii. PINE WARBLER.—Fairly common migrant. April 19–May 13; September 11–October 17.

Dendroica palmarum palmarum. PALM WARBLER.—Abundant spring migrant, fairly common in the fall. April 19–May 13; September 7–September 30.

Dendroica discolor. PRAIRIE WARBLER.—Rare summer resident, found breeding only in a side valley opening into the river bottom, but found regularly there. April 6–October 15.

Seiurus aurocapillus. OVENBIRD.—Rare summer resident, breeding in only two places in my territory. April 10–October 12.

Seiurus noveboracensis noveboracensis. WATER THRUSH.—Rare migrant. April 27–May 8; September 4–October 8.

Seiurus motacilla. LOUISIANA WATER-THRUSH.—Fairly common migrant, and probably a rare summer resident. April 25–May 24; August 19–October 18.

Oporornis formosus. KENTUCKY WARBLER.—Rare summer resident, found breeding only near Underwood's Schoolhouse, about three miles from town. April 21–August 20.

Oporornis agilis. CONNECTICUT WARBLER.—Rare migrant. April 21–May 14; October 8.

Oporornis philadelphia. MOURNING WARBLER.—Fairly common migrant. April 20–May 20; September 19–October 2.

Geothlypis trichas trichas. MARYLAND YELLOW-THROAT. Common summer resident. April 14–October 29.

Icteria virens virens. YELLOW-BREASTED CHAT. Common summer resident. April 20–September 23.

Wilsonia citrina. HOODED WARBLER.—Rare migrant. April 13–June 6; August 20–October 15.

Wilsonia pusilla pusilla. WILSON'S WARBLER.—Fairly common migrant. April 18–May 13; September 6–Sept. 29.

Wilsonia canadensis. CANADA WARBLER.—Rare migrant. April 28–May 16; September 17–September 25.

Setophaga ruticilla. AMERICAN REDSTART.—Abundant migrant and fairly common summer resident. April 4–September 30.

Anthus rubescens. AMERICAN PIPIT OF TITLARK. Migrant. Very erratic. A few seen April 6, 1912; hundreds seen May 1 and 8, 1920; ten or more seen April 23, 1921.

Mimus polyglottos polyglottos. MOCKINGBIRD.—Common to abundant in summer, fairly common in winter.

Dumetella carolinensis. CATBIRD. Common to abundant summer resident. April 14–October 25.

Toxostoma rufum. BROWN THRASHER. Common to abundant summer resident. March 5–October 13.

Thryothorus ludovicianus ludovicianus. CAROLINA WREN. Resident. Common in summer, fairly common in winter.

Thyomanes bewicki bewicki. Resident. Common in summer, a little more common in winter than the Carolina.

Nannus hiemalis hiemalis. WINTER WREN.—Fairly common migrant. February 22–May 18; October 21–October 25. I hear its song nearly every spring and occasionally in the fall.

Cistothorus stellaris. SHORT-BILLED MARSH WREN.—One seen May 5, 1917, another April 27, 1918.

Telmatodytes palustris palustris. LONG-BILLED MARSH WREN.—Rare migrant. May 5– ; September 21–September 28.

Certhia familiaris americana. BROWN CREEPER.—Fairly common to common winter resident, more numerous in migrations. October 4–May 21.

Sitta carolinensis carolinensis. WHITE-BREASTED NUTHATCH.—Fairly common resident, being very local in its distribution.

Sitta canadensis. RED-BREASTED NUTHATCH.—Rare migrant. April 27–May 4; October 3–November 4.

Basolophus bicolor. TUFTED TITMOUSE.—Common to abundant resident, more numerous in winter than in summer.

Parus carolinensis carolinensis. CAROLINA CHICKADEE.—Common to abundant resident, more numerous in winter.

Regulus satrapa satrapa. GOLDEN-CROWNED KINGLET.—Common winter resident until the winter of 1917–1918; just now becoming common again. October 13–April 27.

Regulus calendula calendula. RUBY-CROWNED KINGLET.—Fairly common migrant. March 22–May 7; September 23–November 5.

Poliophtila caerula caerula. BLUE-GRAY GNATCATCHER.—Common summer resident. March 24–September 27.

Hylocichla mustelina. WOOD THRUSH.—Common summer resident. March 22–October 14.

Hylocichla fuscescens fuscescens. VEERY.—Fairly common spring migrant, very rare in the fall. April 1–May 11; Sept. 18.

Hylocichla aliciae aliciae. GRAY-CHECKED THRUSH.—Common to abundant migrant. April 21–May 28; September 20–October 23.

Hylocichla ustulata swainsoni. OLIVE-BACKED THRUSH.—Common to abundant migrant. Nearly every year I find one or more wounded by flying against telephone wires, or buildings. April 17–May 19; September 20–October 18.

Hylocichla guttata pallasi. HERMIT THRUSH.—Rare migrant. March 12–May 14; September 16–October 24.

Planesticus migratorius migratorius. AMERICAN ROBIN.—Resident. Abundant in summer, fairly common in winter.

Sialia sialis sialis. BLUEBIRD.—Common to abundant resident.

The following species I have identified to my entire satisfaction both with and without glasses but no specimens have been taken and knowing the unsatisfactory status of sight identification I agree with the editor that it will be best not to include them in the formal list at present.

Helinaia swainsoni. SWAINSON'S WARBLER.

Vermivora bachmani. BACHMAN'S WARBLER.

Dendroica kirtlandi. KIRTLAND'S WARBLER.

State Normal School, Bowling Green, Kentucky.

SEVENTH ANNUAL LIST OF PROPOSED CHANGES IN THE A. O. U. CHECK-LIST OF NORTH AMERICAN BIRDS

BY HARRY C. OBERHOLSER

This is the Seventh Annual List of proposed A. O. U. 'Check-List' additions and changes in the names of North American birds. Like the six already published,¹ the present list comprises only ornithological cases—i. e., such as require specimens or the identification of descriptions for their determination—and consists of additions, eliminations, rejections, and changes of names due to various causes. However, only changes known to be the result

¹ For these previous lists, see 'The Auk,' XXXIII, October, 1916, pp. 425–431; XXXIV, April, 1917, pp. 198–205; XXXV, April, 1918, pp. 200–217; XXXVI, April, 1919, pp. 266–273; XXXVII, April, 1920, pp. 274–285; XXXVIII, April, 1921, pp. 264–269.

of revisionary work are included; therefore, no mention is here made of changes involved in names in local lists or elsewhere, used without sufficient explanation or not known to be based on original research, of changes or additions queried or but tentatively made, or of the elimination of subspecies by authors who, on general principles, recognize no subspecies. Furthermore, no opinion beyond that of compiler is herein expressed.

This list is intended to include everything pertinent up to December 31, 1921, and nothing after that date has been taken. In view of the volume and widely scattered character of current ornithological literature, it is not unlikely that some names or changes have been overlooked, and the writer would be very thankful for reference to any omissions, in order that such may be duly given a place in next year's list.

ADDITIONS AND CHANGES IN NAMES¹

Colymbus grisegena holboellii (Reinhardt) becomes **Pedetaithya grisegena major** Temminck and Schlegel (*Podiceps rubricollis major* Temminck and Schlegel, in Siebold's Fauna Japonica, 1849, p. 122, pl. 78B; Japan), because generically distinct from *Colymbus* Linnaeus, and because therefore *major* is its earliest tenable subspecific designation. (Cf. Oberholser, THE AUK, XXXVIII, No. 1, January, 1921, p. 79.)

† **Gavia immer elasson** Bishop. New subspecies. Bishop, The Auk, XXXVIII, No. 3, July, 1921, p. 367 ("Carpenter Lake, Rolette County, North Dakota"). Range: breeds from northern California and North Dakota north to British Columbia and Manitoba.

Cepphus mandti Mandt becomes **Cepphus grylle mandtii** Mandt, because considered only a subspecies of *Cepphus grylle* (Linnaeus). (Cf. Hartert, Vögel paläarkt. Fauna, Heft XV [Band III, 1], April, 1921, p. 1776.)

† **Catharacta chilensis** Bonaparte ([*Stercorarius antarcticus*] *chilensis* Bonaparte, Consp. Gen. Avium, II, 1857, after October 1, p. 207; "ex Am. m." [= South America]). North American records of *Catharacta skua* from the Pacific Coast are found to be of this species. (Cf. Bent, Condor, XXIII, No. 3, June 3, 1921, pp. 78-80.)

Larus vegae Palmen becomes **Larus argentatus vegae** Palmen, because only subspecifically separable from *Larus argentatus*. (Cf. Hartert, Vögel paläarkt. Fauna, Heft XIII-XIV [Band II, 7-8], p. 1726.)

¹ Additions to the A. O. U. Check-List, the Sixteenth and Seventeenth Supplements, and the First to Sixth Annual Lists are marked with a dagger (†). Generic (and subgeneric) names so indicated do not now stand in these lists in either generic or subgeneric sense.

- Larus leucopterus** Faber becomes **Larus glaucoides** Meyer, because preoccupied by *Larus leucopterus* Vieillot, a synonym of *Larus hyperboreus*; and *Larus glaucoides* Meyer (in Meyer and Wolf's Taschenb. deutschen Vogelk., Zusätze und Bericht., III, 1822, after April, p. 197; "Meere der arktischen Zone, Z. B. in Island") is the next available name. (Cf. Mathews and Iredale, Austral Avian Record, IV, No. 6, August 1, 1921, pp. 155-156.)
- Chroicocephalus franklinii** (Richardson) becomes **Chroicocephalus pepixcan** (Wagler) (*Larus pepixcan* Wagler, Isis (von Oken), XV, Heft 5, May, 1831, col. 515; Mexico), because the latter name is of earlier date and of equal pertinence. (Cf. Mathews and Iredale, Austral Avian Record, IV, No. 6, August 1, 1921, p. 156.)
- Gelochelidon nilotica** (Gmelin) becomes **Gelochelidon nilotica aranea** (Wilson) (*Sterna aranea* Wilson, Amer. Ornith., VIII, 1814, p. 143, pl. LXXII, fig. 6; Cape May, New Jersey) by recognition of the American race as distinct. (Cf. Mathews and Iredale, Man. Birds Australia, I, 1821, p. 95; Hartert, Vögel paläarkt. Fauna, Heft XIII-XIV [Band II, 7-8], February, 1921, p. 1691.)
- Sternula antillarum antillarum** Lesson becomes **Sternula albifrons antillarum** Lesson, because only subspecifically different from *Sternula albifrons* (Pallas). (Cf. Hartert, Vögel paläarkt. Fauna, Heft XIII-XIV [Band II, 7-8], February, 1921, p. 1715.)
- Sternula antillarum browni** Mearns becomes **Sternula albifrons browni** Mearns, because only subspecifically different from *Sternula albifrons* (Pallas). (Cf. Hartert, Vögel paläarkt. Fauna, Heft XIII-XIV [Band II, 7-8], February, 1921, p. 1715.)
- † **Daption capense australis** Mathews. New subspecies. Mathews, Austral Avian Record, I, No. 8, March 20, 1913, p. 187 (New Zealand). The bird of this species recorded from California belongs to this Pacific Ocean race. Range: South Pacific Ocean.
- † **Tadorna tadorna** (Linnaeus). *Anas tadorna* Linnaeus, Syst. Nat., ed. 10, I, 1758, p. 122 ("in Europae maritimis"). Recorded as North American from a specimen taken in Ipswich Bay off Annisquam, Mass. (Cf. Morse, Bull. Essex County Ornith. Club, [III], December, 1921, p. 68.)
- Marila marila nearctica** (Stejneger) becomes **Fulix marila nearctica** (Stejneger), by recognition of the genus *Fulix* Sundevall. (Cf. Oberholser, Proc. Indiana Acad. Science, for 1920 [1921], pp. 106-108.)
- Marila affinis** (Eyton) becomes **Fulix affinis** (Eyton), by recognition of the genus *Fulix* Sundevall. (Cf. Oberholser, Proc. Indiana Acad. Science, for 1920 [1921], pp. 106-108.)
- † **Perissonetta** Oberholser. New genus. Oberholser, Proc. Indiana Acad. Science, for 1920 [October 1, 1921], p. 110; type by original designation and monotypy, *Anas collaris* Donovan. Thus *Marila*

collaris (Donovan) of the Check-List will become

Perissonetta collaris (Donovan).

Marila fuligula (Linnaeus) becomes ***Fuligula fuligula*** (Linnaeus), by recognition of the genus *Fuligula* Stephens. (Cf. Oberholser, Proc. Indiana Acad. Science, for 1920 [1921], p. 108.)

Marila ferina (Linnaeus) becomes ***Aithya ferina*** (Linnaeus), by recognition of the genus *Aithya* Gloger. (Cf. Oberholser, Proc. Indiana Acad. Science, for 1920 [1921], pp. 110-112.)

Gallinago delicata (Ord) becomes ***Capella gallinago delicata*** (Ord.) because only subspecifically different from the Old World *Capella gallinago* [and by reason of its change of generic name from *Gallinago* to *Capella*]. (Cf. Hartert, Hand-List Brit. Birds, 1912, p. 190; and Oberholser, THE AUK, XXXVIII, No. 1, January, 1921, p. 82.)

† ***Limnocinclus*** Gould, Handb. Birds Australia, II, 1865, p. 254; type, *Totanus acuminatus* Horsfield. Recognized as a genus to include *Pisobia acuminata* Horsfield. (Cf. Mathews and Iredale, Man. Birds Australia, I, 1921, p. 129.)

† ***Neopisobia*** Mathews. New subgenus. Mathews, Birds Australia, III, pt. 3, August 18, 1913, p. 245 (in text); type by original designation, "The bird described by Horsfield as *Totanus damacensis*" = *Pisobia ruficollis* (Pallas).

Calidris alba (Pallas) becomes ***Crocethia alba rubida*** (Gmelin) (*Charadrius rubidus* Gmelin, Syst. Nat., I, ii, 1789, p. 688; Hudson Bay, Canada) by recognition of the North American subspecies. (Cf. Mathews and Iredale, Man. Birds Australia, I, 1921, p. 134.)

† ***Vetola*** Mathews. Restored as a genus (Cf. Mathews and Iredale, Man. Birds Australia, I, 1921, p. 145). (Cf. also, THE AUK, XXXV, 1918, p. 204.)

Heteractitis brevipes (Vieillot) becomes ***Heteroscelus incanus brevipes*** (Vieillot), because considered only subspecifically distinct. (Cf. Hartert, Vögel paläarkt. Fauna, Heft XIII-XIV [Band II, 7-8], February, 1921, p. 1621.)

Arenaria interpres interpres (Linnaeus) becomes ***Arenaria interpres oahuensis*** (Bloxham), by revival of the Pacific subspecies. (Cf. Mathews and Iredale, Man. Birds Australia, I, 1921, p. 161.) (Cf. also THE AUK, XXXIV, 1917, p. 200.)

Haematopus bachmani Audubon becomes ***Haematopus niger bachmani*** Audubon, because considered only subspecifically different from *Haematopus niger* Temminck. (Cf. Hartert, Vögel paläarkt. Fauna, Heft XIII-XIV [Band II, 7-8], February, 1921, p. 1679.)

† ***Dendragapus obscurus sitkensis*** Swarth. New subspecies. Swarth, Condor, XXIII, No. 2, March 31, 1921, p. 59. Range: southeastern Alaska.

Lagopus rupestris (Gmelin) becomes ***Lagopus mutus rupestris*** (Gmelin), because only subspecifically different from *Lagopus mutus*

(Montin). (Cf. Hartert, *Vögel paläarkt. Fauna*, Heft XV [Band III, 1], April, 1921, p. 1871.) By this change all the North American subspecies of *Lagopus rupestris* become subspecies of *Lagopus mutus*, as follows:

- Lagopus mutus rupestris* (Gmelin).
- Lagopus mutus reinhardi* (Brehm).
- Lagopus mutus nelsoni* Stejneger.
- Lagopus mutus atkhensis* Turner.
- Lagopus mutus townsendi* Elliot.
- Lagopus mutus chamberlaini* Clark.
- Lagopus mutus dixonii* Grinnell.
- Lagopus mutus kelloggii* Grinnell.
- Lagopus mutus sanfordi* Bent.

Lagopus evermanni Elliot becomes *Lagopus mutus evermanni* Elliot, because only subspecifically distinct from *Lagopus mutus* (Montin). (Cf. Hartert, *Vögel paläarkt. Fauna*, Heft XV [Band III, 1], April, 1921, p. 1871.)

Lagopus welchi Brewster becomes *Lagopus mutus welchi* Brewster, because only subspecifically different from *Lagopus mutus* (Montin). (Cf. Hartert, *Vögel paläarkt. Fauna*, Heft XV [Band III, 1], April, 1921, p. 1871.)

Ortalis vetula mccalli (Baird) becomes *Ortalis vetula vetula* (Wagler) (*Penelope. vetula* Wagler, Isis [von Oken], XIV, Heft XI, November, 1830, col. 1112; ("Mexico" [subsequently restricted to neighborhood of the city of Vera Cruz, Mexico]), because not subspecifically separable. (Cf. Miller and Griscom, *THE AUK*, XXXVIII, No. 1, January, 1921, pp. 44-46.)

Cathartes aura septentrionalis Wied becomes *Cathartes aura aura* Linnaeus, because the latter is considered to be the North American race. (Cf. Swann, *Synopsis Accipitres*, pt. 1, September 28, 1921, p. 3.)

† *Accipiter cooperii mexicanus* Swainson. *Accipiter Mexicanus* Swainson, *Fauna Bor.-Amer.*, II, 1831 (February, 1832), p. 45, footnote ("Real del Monte [Hidalgo], Mexico"). Revived as a subspecies. (Cf. Swann, *Synopsis Accipitres*, pt. 1, September 28, 1921, p. 53. Range: western United States to Central America.

† *Crotophaga sulcirostris pallidula* Bangs and Penard. New subspecies. Bangs and Penard, *Bull. Mus. Comp. Zool.*, XLIV, No. 4, January, 1921, p. 365 (San Jose del Cabo, Lower California). Range: southern Lower California.

† *Micropus pacificus* (Latham). *Hirundo. pacifica* Latham, *Index Ornith. Suppl.*, 1801, p. LVIII ("Nova Hollandia" [= Australia]). Recorded as North American from a specimen taken on St. George Island, Alaska. (Cf. Mailliard and Hanna, *Condor*, XXIII, No. 3, June 3, 1921, p. 93.)

- † **Nuttallornis borealis majorinus** Bangs and Penard. New subspecies. Bangs and Penard, Proc. Biol. Soc. Wash., XXXIV, June 30, 1921, p. 90 ("Pine Flats, North Fork of San Gabriel River, Angeles County, California"). Range: western North America, south in winter to Peru.
- Cyanocitta cristata cristata** (Linnaeus) becomes **Cyanocitta cristata bromia** Oberholser, nom. nov. (cf. Oberholser, THE AUK, XXXVII, No. 1, January, 1921, pp. 86-89; "Wooster, Wayne County, Ohio"), because the name *Cyanocitta cristata cristata* applies to the Florida Blue Jay, *Cyanocitta cristata florincola* Coues.
- Cyanocitta cristata florincola** Coues becomes **Cyanocitta cristata cristata** (Linnaeus), because Blue Jays from Florida, the type locality of *Cyanocitta cristata florincola*, are subspecifically the same as *Cyanocitta cristata cristata*. (Cf. Oberholser, THE AUK, XXXVIII, No. 1, January, 1921, pp. 83-86.)
- † **Thryospiza maritima juncicola** (Griscom and Nichols). New subspecies. *Passerherbulus maritimus juncicola* Griscom and Nichols, Proc. Linn. Soc. N. Y., XXXII, November 3, 1920, p. 25 (Goose Creek, Wakulla County, Florida). Range: vicinity of Goose Creek and St. Marks, Wakulla County, northern Florida.
- † **Thryospiza maritima howelli** (Griscom and Nichols). New subspecies. *Passerherbulus maritimus howelli* Griscom and Nichols, Proc. Linn. Soc. N. Y., XXXII, November 3, 1920, p. 22 (Dauphine Island, Alabama). Range: breeds on coast of Alabama and Mississippi; winters to Texas and northern Florida.
- † **Lanius excubitor mollis** Evermann. *Lanius mollis* Eversmann, Bull. Soc. Imp. Nat. Moscou, XXVI, No. IV, 1853, p. 498 ("Sudlichen Altai" [southern Altai Mts.]). Recorded from a specimen taken 260 miles west of Sitka, Alaska. (Cf. Mailliard and Hanna, Condor, XXIII, No. 3, June 3, 1921, p. 93.)
- † **Dendroica auduboni memorabilis** Oberholser. New subspecies. Oberholser, Ohio Journ. Science, XXI, No. 7, June 6, 1921, p. 243 ("Ward, Boulder County, Colorado"). Range: breeds from Saskatchewan and Alberta to Arizona and Texas; winters south to Guatemala.
- † **Motacilla lugens Kittlitz**. *Motacilla lugens* Kittlitz, Kupfertafeln zur Naturg. Vög., Heft 2, 1833, p. 16, pl. XXI, fig. 1 ("Kamtschatka"). Recorded as North American from a specimen taken in Alaska. (Cf. Thayer and Bangs, THE AUK, XXXVIII, No. 3, July, 1921, p. 460.)
- Hylocichla guttata pallasii** (Cabanis) becomes **Hylocichla guttata faxoni** Bangs and Penard, nom. nov. (Cf. Bangs and Penard, THE AUK XXXVIII, No. 3, July, 1921, p. 433; "Shelburne, N. Hampshire"), because the name *Hylocichla guttata pallasii* is a synonym of *Hylocichla guttata guttata* (Pallas).

REJECTIONS AND ELIMINATIONS¹

Botaurus lentiginosus (Montagu) vs. **Botaurus stellaris lentiginosus** (Montagu). Proposed reduction to a subspecies (cf. Hartert, Hand-List Brit. Birds, 1912, p. 126) rejected. (Cf. Hartert et al., British Birds, IX, No. 1, June 1, 1915, p. 6; Oberholser, THE AUK, XXXVIII, No. 1, January, 1921, p. 80.)

* **Numenius americanus occidentalis** Woodhouse = *Numenius americanus* Bechstein. (Cf. Grinnell, Condor, XXIII, No. 1, February 5, 1921, pp. 21-27.)

GENERAL NOTES

Dovekie (Alle alle) at Newport, Me.—A Dovekie was picked up dead by Mr. Arthur E. Jordan in a field on his farm near Newport, Maine, late in December, 1921.—CARRIE E. MILLER, *Lewiston, Me.*

Iceland Gull at Elizabeth, N. J.—On a trip to the Elizabeth salt marshes, bordering Newark Bay on January 15, 1922, Mr. Ralph Friedman of Brooklyn and the writer saw at relatively close range—50 to 75 yards—a white gull resting on a mud flat with a small group of Herring Gulls. The bird was no larger, probably a little smaller, than the Herring Gulls. There was little difference in length, but the white bird had a slightly more slender body. The tip of the bill was noticeably dark. When first seen the plumage to both observers appeared uniformly white, though when seen after flight and at a greater distance through 8x glasses the feathers on the back of neck showed dirty white, slightly darker than the rest of the plumage. It seems safe to record the bird as an Iceland Gull (*Larus leucopterus*). On February 4, on Newark Bay, I saw two more of these birds in a very large flock of Herring Gulls and a few Ring-bills. One was apparently pure white and the other very dirty white though the primaries were pure white. Bills dark terminally. The latter was again seen on March 18.—CHARLES A. URNER, *Elizabeth, N. J.*

An Inland Record for the Man-o'-war-bird. In going over some old journals recently, I found a note which should have been recorded long ago.

On a visit to the Lone Tree Club, near Gladstone, Illinois, on October 10, 1903, I saw a mounted specimen of a Man-o'-war-bird. Inquiry revealed that the bird had been found in an exhausted condition on the Iowa bluffs

¹ Eliminations from the A. O. U. Check-List, the Sixteenth and Seventeenth Supplements, and the First to Sixth Annual Lists, are designated by an asterisk (*)

of the Mississippi, immediately south of Burlington, in August of the same year, and that although it had been fed, they had succeeded in keeping it alive for a few days only. I believe that this is the first Iowa record for the Man-o'-war-bird (*Fregata magnificens rothschildi*).—PAUL BARTSCH, *U. S. National Museum, Washington, D. C.*

Surf Scoters (*Oldemia perspicillata*) near St. Louis, Mo.—Surf Scoters in juvenile dress have been taken in Missouri before this, but Mr. Steinwender of St. Louis took a male and female, probably a pair, in fine adult dress on November 19, 1921, on the Dardenne Club grounds, twenty-five miles northwest of St. Louis; Mr. Frank Schwarz of St. Louis mounted them.—O. WIDMANN, *St. Louis Mo.*

European Widgeon (*Mareca penelope*) at Corpus Christi, Texas.—On December 20, 1921, Mr. Sidney T. Bixby of St. Louis shot from the yacht of Mr. Jos. Pulitzer, Jr., at Corpus Christi, Texas, a fine male European Widgeon. It was at first taken for a hybrid and has been mounted by Mr. F. Schwarz of St. Louis. More European Widgeons may be killed by hunters in North America than our records show, but considered hybrids they are not thought worth the trouble and expense of having them preserved.—O. WIDMANN, *St. Louis, Mo.*

Old-squaw (*Clangula hyemalis*) in Texas.—On December 13, 1921, I was asked to identify two Old-squaws which had been shot the day before near the town of Cove, some twenty-five or thirty miles from Houston, by two gunners from Dallas, Texas. They were apparently birds of the year and the sex was not determined. I failed to learn whether they were with others of the same species or alone. The bird is unknown to the local gunners.—ROBERT B. LAWRENCE, *Houston, Texas.*

An Enormous Flock of Canvas-backs (*Marila valisineria*) Visit the Detroit River.—On the morning of January 24, 1922, a big flock of canvasbacks (*Marila valisineria*) appeared on the Detroit River in the immediate vicinity of Belle Isle, the city park. Careful estimates by the observer and others placed the number of birds at about 1,000, and it was agreed that this number was more likely to have been an underestimate than otherwise.

Daily accessions to the ranks of the birds soon brought up the number to approximately 10,000, and these have remained in the waters about the island continuously until now, the last of February.

As the birds have been feeding very near the island, often within 50 feet of the shore, it has been easy to watch their methods. They dive in turn and about half of them are under the water at a time. When those that dive come up they bring roots of eel grass which they slap around violently until the root is broken into small pieces which they swallow and no piece is ever wasted, for if a small fragment starts away borne upon the current the duck retrieves it and eats it.

There seems to be no special reason why these birds should come here this year and particularly so early in the season. The winter has been mild and the river has remained open but often the winters are mild here, notably last winter which was even milder than the present season, yet my only record for Canvasbacks last spring was on March 19, when I saw a small flock of eight.

Old duck hunters with many years of experience say that they have never seen the Canvasback here in January and not often as early as the latter part of February; March being their usual time of migration, but Mrs. F. W. Robinson, of this city, a careful and faithful observer, says that seven or eight years ago during a very mild winter she saw a flock of several hundred of them on the Detroit River during the latter part of January.—ETTA S. WILSON, *Detroit, Mich.*

The Greater Snow Goose in Massachusetts.—Three specimens of *Chen hyperborea nivalis* were shot in the Westfield Little River, not far from Westfield, Massachusetts, on Thanksgiving Day, November 24, 1921. Two were immature with dark bills and feet, but the third was a mature bird. Unfortunately two of these geese, including the adult, were plucked and eaten before I learned of their being shot, and the third one was rescued while on the way for another dinner. This specimen, which has the rusty tinge about the head and neck, is now being mounted for the Springfield, Mass., Museum of Natural History.

Undoubtedly there was a very unusual flight of Snow Geese into this region about this time as a flock estimated to contain over one hundred birds was reported as seen in Southwich Ponds not far from Westfield. A single bird was also shot at Portland, Conn., one at East Windsor Hill, and a small flock noted at Glastonbury.

Mr. Robert O. Morris informs me that he observed a Snow Goose in the spring of 1887 in Longmeadow near the Connecticut River, a few miles below Springfield. His only other record of the bird dates back at least twenty-five years. It is of a Snow Goose wounded and captured in the vicinity of Springfield and kept for several years with a flock of domestic geese in the town of Southwick.—AARON C. BAGG, *Holyoke, Mass.*

Notable Increase of Egrets in Chatham County, Georgia.—It is with much gratification that I am enabled to report a marked increase in the numbers of Egrets (*Casmerodius egretta*) breeding in Bird Pond, Ossabaw Island, Chatham County, Georgia. I first visited this pond in May 1905, devoting two days—May 11 and 14—to a study of the varied and abundant bird life which finds refuge there, nesting harmoniously in close proximity. At that time there were approximately a dozen pairs of Egrets breeding there (see Wilson Bulletin, March 1921, pp. 6-7). On April 30, 1921, I again visited this rookery, in company with Thos. D. Burleigh and J. T. Wheeler of the faculty of the University of Georgia. Besides making a very accurate count of the Egret population, we secured

much interesting data on the habits of the several species of water birds nesting in the pond. We found that the colony of Egrets had increased to thirty-four pairs, the contents of their nests being as follows: Nine contained young two or three days old; five held young a week or ten days old; one contained two pipped eggs; one held a single egg; four held two eggs each; ten contained three eggs each, incubation of which was far advanced, and a single nest contained four eggs.

The height of these nests varied from eight to twelve feet above the surface of the water which was three feet deep. Several of the larger willows supported four or five nests, while other trees held two and sometimes only one nest. Frequently, while climbing to the nests to examine their contents, a limb would give way beneath our weight, so frail and brittle are these trees, but we were always careful to avoid placing our entire weight on any limb supporting a nest.

In marked contrast to the behavior of these Egrets during my first visit to their rookery in 1915, when it was impossible to get within two hundred feet of them, was our experience with them in 1921. We were frequently allowed to approach to within a few yards of an adult standing on a limb near its nest, especially those birds whose eggs had hatched.

The pond in which this remnant of this beautiful and once abundant species breeds is not a natural one, but was formed and is maintained by the accumulation of water flowing from an artesian well. Should this well go dry—which, however, is very unlikely—these and all the hundreds of pairs of other species of herons which breed in the pond would be forced to seek other nesting places. These birds, especially the Egrets and Snowy Herons, are rigidly protected by the owners of the island, and, unless some unforeseen disaster should overtake them, will continue to increase steadily.—W. J. ERICHSEN, 2311 Barnard Street, Savannah, Ga.

Nesting of the Bittern (*Botaurus lentiginosus*) in Philadelphia Co., Pa. In 'The Auk', 1918, p. 477, I recorded the discovery of a Bittern's nest at Woodbury Gloucester county N. J., in the Delaware Valley, and within ten miles of Philadelphia. This was the first definite nesting record of this species in this region where it seems to be a rare breeder. On May 31, 1921, I found a nest containing five eggs at Bridesburg, Philadelphia, on the Delaware River marshes, within five miles of the City Hall. The female was flushed from the nest and let me approach within two yards before vacating. The nest was in a patch of wide-leaved cattail in a large marsh, within a few yards of a railroad, less than a quarter of a mile from a foundry and still nearer to a shipyard. This is the only record of the nesting of the Bittern on the Pennsylvania side of the river, and one of the few records for the State.—RICHARD F. MILLER, Philadelphia, Pa.

A Connecticut Record of the Stilt Sandpiper.—The Stilt Sandpiper (*Micropalama himantopus*) is not often recorded from Connecticut in

either spring or fall. For that reason I wish to put on record a bird observed by myself at Great Marsh, Westport, Conn., on May 28, 1921. The tide was low at the time, and the bird was found standing in the tall sedges that grow between low and high water. It allowed me to approach very closely and to make out all of its markings and characteristics save the long legs which were hidden in the grass, and did not show to advantage when the bird finally flew. While I have never before seen this species, the markings tallied in every way with those of the Stilt Sandpiper in spring plumage, and I have no doubt of its correct identification.—ARETAS A. SAUNDERS, *Fairfield, Conn.*

The European Gray Partridge in Saskatchewan.—During the first week in November, a bird was sent in from Rutland, Sask., to the University of Saskatchewan for identification. It was the Gray Partridge of Europe, here called the Hungarian Partridge. It has been mounted for the University Museum.

I have gathered the following information about the bird:

Mr. Russell Martin, who sent the specimen in states:

"I saw a flock of from 15 to 20 of these birds at the edge of a wheat field, about the first of September and about the first of November picked this one up from beside the road three miles from where I saw the flock. It had apparently been killed by flying against a telephone wire. This is a hilly, rough country with considerable brush and sloughs or pot holes. About half the land is farmed."

Mr. Benj. Lawton, Chief Game Guardian of Alberta, notes under date of November 30, 1921: "There is no doubt in my mind but that these birds are the natural increase of a number of pairs which were turned loose by the sportsmen of Calgary about the year 1910. They have spread all over the southern half of the Province of Alberta and have got as far as Edmonton. They are very prolific"

"There were two importations, one I believe in the spring of 1910, and the other in the spring of 1911. There have been no importations since the outbreak of the war"

"The open season in this Province is for the whole month of October, with a bag limit of 10 birds for the day and 50 for the season."

Mr. F. Bradshaw, Chief Game Guardian of Saskatchewan, wrote from Regina, Sask., Dec. 1, 1921: "I have no previous authentic information on file regarding this bird being observed in Saskatchewan, but under date of November 23rd, I received a letter from Mr. G. H. Coulter, Box 5, Piapot, in which he states that he had, 'seen some small birds around here this fall, thought they were quail. Have been told that they are Hungarian partridge from Alberta. They flush all together, and run on the ground.'"

"It would appear that these birds are extending their range, and have now crossed the Alberta boundary, and I have asked Mr. Coulter to keep the birds in his district under observation, and advise us from time to time how they are getting along."

Piapot, Sask., is 68 miles north of the U. S. boundary, and 40 miles east of the Alberta boundary. It is less than five miles south of Crane Lake. Rutland, Sask., is 174 miles farther north, and is twenty miles from the Alberta boundary.

It would be interesting, if the information is available, to know whether they have yet appeared in Montana.—JOHN SMITH DEXTER, *Saskatoon, Sask.*

Early Nesting of the Mourning Dove.—In the spring of 1921, Mourning Doves (*Zenaidura macroura carolinensis*) returned from the south unusually early. I saw one bird at Fairfield, Conn., on February 5. This may have been a wintering bird, but by March 12 several birds were seen or heard cooing, and the species seemed to be fully as abundant as in summer. On the first day of April, while crossing a dense grove of tall red cedars I saw a bird fly from a stick nest about ten feet up in a cedar. On climbing to the nest I found the usual two eggs, apparently quite fresh.

I visited this nest a number of times, and up to April 10 everything was all right, but on April 20, my next visit after that date, the nest was empty. The earliest previous date for nesting of this species in Connecticut is April 29, 1894 ('Birds of Connecticut,' p. 73) and dates of earliest nesting from other localities indicate that this nest was earlier than is normal with the species.—ARETAS A. SAUNDERS, *Fairfield, Conn.*

On the Nesting of *Ectopistes migratorius*—The following letter from Mr. Charles Douglas, the veteran ornithologist of Waukegan, Illinois, is interesting from the fact that his observations can be absolutely relied on: "I was glad to learn today that you had taken up the nesting of the Passenger Pigeon, the number of eggs they laid, etc. From articles I have read from time to time, that Wild Pigeons laid two eggs or one egg is a question that puzzled me. In my time I have found and examined twelve to fifteen Wild Pigeons' nests on most of which the old bird was sitting, but never found in any of them more than one egg, and it always seemed strange to me that so many nests could be found without more than one, if they ever lay more.

"You know the nests in this locality were few and only one pair of birds to each nest. It may be possible that in big pigeon roosts, more than one bird laid in the same nest, where they were crowded, as was the case in northern Michigan. All the nests I found were in the same place each year, and in groups of three or four, not many rods apart, in the big pines near the Lake at Beach (a mile North of Waukegan), and in a small hard-wood grove about a mile west.

"In the spring the birds fed on the wild raspberries, and in the summer came into the garden and ate the cherries. At this time of the year we did not disturb them. All is changed now; a week ago, when I sat by a fire on one of the old decaying pine logs, one of the few left of the old

nesting places, my thoughts wandered back over the dear old times and companions of years ago. I often go to the favorite old places to live it all over again."—HENRY K. COALE, *Highland Park, Ill.*

Notes on *Ectopistes migratorius*.—Along in the sixties and early seventies, when millions of Passenger Pigeons made their yearly pilgrimage to their northern Michigan and Wisconsin breeding grounds, a man by the name of Tom Stagg made a business of supplying live Pigeons for trap shooting matches. He owned forty acres, a house and large barn at the north-west limits of Chicago (now Fullerton and Diversy Avenues).

The outside sheeting of the barn was removed and the sides latticed with laths, making the building one huge cage. With an assistant, Byron E. Clarke, who is still living at Hinsdale (a suburb of Chicago), he made regular trips to the Pigeon roosts near Muskegan, Michigan, and Portage, Wisconsin, to get live birds for the shooting matches.

The Pigeons were in such great flocks that they covered all the branches of the pine trees, and by going among them at night, they could be taken by hand from the lower branches by hundreds. They were dropped into bags, and transferred into crates and shipped. At times Mr. Stagg had as many as 5000 or more in his big cage. He provided watering troughs and feed before re-shipping to his customers, the average price being \$1.25 a dozen.

When the Pigeons were put into this huge cage they were so thirsty, that many drank themselves to death, or were killed in the mad scramble for water. In 1876 R. A. Turtle (now a taxidermist in Chicago) took 3500 Passenger Pigeons in crates to the annual live pigeon shoot in New York, which was run by Greene Smith, who was known to many of the older A. O. U. members, when he accumulated a large collection of birds at his home in Peterboro, N. Y. When this shipment reached its destination, most of the birds had worn the skin and feathers off the top of their heads from contact with the crates.

There was also the Abe Kleimann trap grounds near Chicago, where thousands of the Pigeons were shot. The writer, George Clingman and Joseph Hancock (still living) picked up dozens of wounded birds, which fell outside the fence. Mr. Clingman recently gave his fine collection of mounted birds to the Bryn Mawr High School of Chicago.—HENRY K. COALE, *Highland Park, Ill.*

Economic Status of *Coragyps urubu* in British Guiana.—When I was in Georgetown, during the winter of 1920-21, the Black Vulture was one of the commonest birds about the city. It was an everyday experience to see them sitting in rows on the roofs of houses, while the public abattoir, within the harbor, rarely had less than 30 or 40 about the buildings, apparently on the lookout for slaughter-house offal. Now one gets only a distant glimpse of occasional individuals flying high in air; at least nine-tenths of these municipal scavengers have disappeared, and I have not yet noticed a single bird roosting on a ridgepole.

Until 1921, attempts made by the Government Health Department to organize a campaign against these "carrion crows" failed, owing to local prejudice, although the birds were said to be a source of serious pollution of the drinking water, largely supplied by roof drainage in this region of torrential rains. Last year, as I was leaving the colony, I learned that an ordinance had finally passed the town council authorizing the shooting of the vultures by the police. To what extent this law has meantime been carried out I am unable to say, but a great many "crows" were undoubtedly killed and (probably) many more frightened away, to become denizens of the country districts where, in the absence of a regular system of carrion disposal, they will, without doubt, be of definite value as scavengers.

Although the agitation for the removal of the Black Vultures did not result in their immediate destruction, yet the public were to some extent convinced that they were a source of filth, and perhaps of disease, through defilement of the water supply. As a consequence, quite a number of buildings were "protected" from contamination by means of various devices.

The most common scheme was that of affixing an upright of serrated iron, or several strands of wire supported at intervals of three or four feet, along the whole length of the ridgepole, so that the vultures could not alight or roost upon it.

Analyses of the cistern water collected from effectively "protected" roofs proved the wisdom of this precaution, as it was found to be uniformly free from pathogenic bacteria, while reservoirs filled from "unprotected" roof-areas (and especially those known to be patronized by carrion crows) were often shown to be infected by morbid germs.

The Government Medical Officer of Health, Dr. E. P. Minett, informs me that while the rain water used by the European residents in the colony is generally boiled before use, it is doubtful if this precaution can be relied upon as carried out by native cooks, and the danger of infection is a very real one where carrion crows abound, as these filthy birds have been shown to communicate pathogenic bacteria to the water supplies by their habits of carrying filth to the roof; also, their feces have been proved to contain purulent pathogenic microbes. Many analyses carried out by the Department on the excrement of these vultures demonstrate that they are fully endowed with polluting powers, and from their habits and situation freely exercise them. Although something may be said in their favor as scavengers in extra-urban localities, their presence in a city of 60,000 inhabitants, with an organized health department boasting a large sanitary staff, is as unnecessary as it is dangerous. It is recognized that to make the movement continuously successful it may be necessary to repeat the vulturine holocaust, lest there be a return of the birds from their country resorts.—CASEY A. WOOD, *Georgetown, Brit. Guiana.*

Snowy Owl at Elizabeth, N. J.—On January 2, on information received from Dr. Wm. B. Ley, of this city, I located a Snowy Owl (*Nyctea nyctea*) on the salt marsh near Elizabeth, and near the shore of Newark Bay. I learned from hunters that the bird had been first seen in that locality on December 26. I found it sitting among the uneven ice chunks left by the receding tide and its plumage blended so perfectly with its surroundings that I might easily have failed to notice it had I not been on the lookout. I got within about seventy yards before the bird took flight and after being disturbed it would not again allow so close an approach. When first seen its posture was vertical, the usual owl pose, but when it lit upon the open ice after being disturbed the body and tail were held horizontal to the ground plane with head erect, this possibly being a usual attitude when the bird is on the alert.

I saw the bird again on January 15 and 22 and March 18, but on neither of these occasions did he assume the horizontal pose, his posture being upright or leaning slightly forward.

Owls have been present in unusual numbers here this winter. My list included weekly from December 4 to January 8 a single Barn Owl (*Aluco pratincola*), always found roosting in the same tree, and a Saw-whet Owl (*Nyctala acadica*) found December 11, while Short-eared Owls (*Asio accipitrinus*) on the salt marshes and Long-eared Owls (*Asio wilsonianus*) in the neighboring nursery evergreen groves have been quite common.
—CHARLES A. URNER, *Elizabeth, N. Y.*

Nesting of the Long-eared Owl in Southern New Jersey.—It is a well-known fact that the Long-eared Owl is a rare breeder in south Jersey, hence the discovery of two nests is worthy of record. Both nests were found by my friend H. M. Harrison, while we were, together with T. E. McMullen, ferreting out the nests of our hawks and owls. They were both found near Pennsgrove, in Salem County, N. J. The first nest held four slightly incubated eggs and was found on April 10, 1921. It was about 25 feet up in a pin oak tree in a thicket of oaks of small size covering about four acres; the female was on the nest. The other nest contained five piped eggs and was examined on April 17, 1921; it was about 25 feet up in a Jersey pine tree, a few yards within a large thicket of pine and oak trees of small size. Both birds were upon the nest. With the exception of nests found by W. B. Crispin and R. T. Moore, these are the only Long-eared Owl's nests known to us from south Jersey.—RICHARD F. MILLER, *Philadelphia, Pa.*

Hawk Migration Route at Whitefish Point, Upper Peninsula of Michigan.—The line of greatest hawk migration between the eastern portion of the Upper Peninsula of Michigan and Canada is at Whitefish Point. This point lies between the eastern end of the open waters of Lake Superior and Whitefish Bay, about 40 miles Northwest from Sault Ste. Marie, and is about 20 miles distant from the Canadian shore. Every

year thousands of hawks take this route but are far more plentiful in spring than fall.

In the spring the bulk of the larger hawks arrive a week or so ahead of the smaller hawks. In the fall few of the smaller hawks use this route and the number of the larger hawks is perceptibly less than in spring.

Usually the flight does not begin until April 15. This spring it was unusually early, starting the latter part of March and hundreds were flying by April 1.

The spring flight is on only when the wind is from the South and at its best after the wind has been from that direction for several days.

The bill allowing 50 cents bounty per hawk was repealed at the last session of the Michigan Legislature, taking effect August 18, so hereafter the spring slaughter of hawks at the Point will not take place. The bounty was paid on 2305 Hawks in this county last spring, of this number 2007 were shot at Whitefish Point. One man shot 254 last spring, 51 in one day, and during the flight in spring of 1920, 563, 60 in one day.

Hawks shot this spring were Goshawk (*Astur atricapillus atricapillus*), Pigeon Hawk (*Falco columbarius columbarius*), Marsh Hawk (*Circus hudsonius*), Osprey (*Pandion haliaetus carolinensis*), Cooper's Hawk (*Accipiter cooperi*), Red-tailed Hawk (*Buteo borealis borealis*), Rough legged Hawk (*Archibuteo lagopus sancti-johannis*) and Sparrow Hawk (*Falco sparverius sparverius*).

In addition to the above several other species were shot but not identified.

One of the shooters reported to me that on April 5, mistaking it for a big black hawk as it came low over the tree tops, he shot a Turkey Buzzard (*Cathartes aura septentrionalis*). He also reported that about a week later he saw another Buzzard but recognized it in time not to shoot it. Six or seven years ago this man's brother saw two Buzzards during the spring hawk flight in the same locality.

The above would indicate that now and then the Buzzard crosses into Canada. In fact one was reported taken at Moose Factory, James Bay, about 300 miles north of the Soo in 1898. (See Auk XX, p. 66)—M. J. MAGEE, Sault Ste. Marie, Michigan.

Golden Eagle (*Aquila chrysaetos*) and Porcupine.—While living at Aitkin, Minnesota, in the latter part of November 1900, a woodman brought to me a Golden Eagle which he had found. It was hardly able to walk and it was easy for him to kill it by beating it on the head with a club, putting the poor creature out of its misery. The bird had evidently aimed to make a meal of a porcupine for it was literally covered underneath with quills. In fact, there were a number of quills in the roof of its mouth. My first thought was that its eyes might have been injured but upon examination I found them perfect. During all of October and the first part of November the weather was rather mild and the ground bare of snow and it could not have been for a scarcity of food that the attack was made on the porcupine. It is, therefore, difficult to understand why

it should make so serious a mistake. The bird, no doubt, had been without food for sometime as the body was very much emaciated and many of the quills had penetrated deep into the flesh causing puss to form. It would have been an interesting study specimen if the skin could have been preserved without removing any of the quills but that was impossible as most of them had to be extracted with a pair of pinchers in order to skin it. The specimen is now in the collection of the late Mr. R. D. Hoyt, Seven Oaks, Florida.—ALBERT LANO, *Fayetteville, Arkansas.*

The Whistled Call of the Hairy Woodpecker.—On January 9, 1922, at 4:15 p. m. I visited my bird trapping station, and discovered that I had captured a male Hairy Woodpecker. For some reason, or other, all species of woodpeckers, that I have caught, seem to be unable to find the exit into the back part of the trap, unless assisted. This individual seemed to be no exception, as he was rushing back and forth, vainly seeking a means of escape, and as I approached he climbed upon the sides of the trap and hung there.

I immediately knelt down beside the trap and began rapping on the sides, this was the only way I could make him loosen his hold, and go into the other part so I could release him. It was of no avail, and finally becoming tired of my position, I arose to my feet. At the same time I was somewhat startled by a loud, piercing, *quavering* whistle. At first I thought it was a whistle blown by some child; I looked out toward the street, but there were no children in sight. Then it came again, loud, clear and decidedly unfamiliar. This time however, I realized that it was a bird call, and examined the surrounding trees. Chickadees were the only birds in sight and I knew that they were quite incapable of making such a sound. The thought that the Hairy Woodpecker was the whistler, never, for a moment entered my mind. For, strangely enough, the sound did not seem to come from the trap, there was an odd ventriloqual quality about it that I cannot describe.

I finally gave up trying to solve the problem, and again turned my attention to my captive, he was still energetically seeking a means of escape. I knelt beside the trap again, and began tapping on it. Again came the odd *quavering* whistle, and it was with a real thrill that I made the discovery that it was the Hairy Woodpecker, after all, that had been calling in this strange manner. He continued to whistle until I succeeded in driving him into the other compartment.

While I was adjusting the band he struggled violently, pecking savagely at my hands and at the band, and every few moments whistling shrilly. Taking the bird's actions into consideration, one might be led to the supposition that this was a cry of anger, for there is no doubt about it, the bird seemed very resentful from the time I discovered him until he was released.

I examined all the bird books in my possession to find an account of

this particular cry, but was unable to find any record of it, I then wrote to the Biological Survey, Washington, and Mr Henderson replied, saying that it was a call known to a very few ornithologists.

All of the male Hairy Woodpeckers that I have banded or have observed, answer Dr. Chapman's description, in that they have the scarlet band on the nape. This individual was an exception, the band was *white*, and in the center of the back of the head were two oval red spots, so accurately and perfectly proportioned, that they seemed to have been painted there. These were separated by a fine black line.—KATHLEEN M. HEMPEL, Elkader, Iowa.

Two Interesting Occurrences of the Alder Flycatcher in Erie County, N. Y.—The Alder Flycatcher (*Empidonax traillii alnorum*) has always been considered a rare, or at least uncommon, breeder in this general locality. During the ten years prior to 1921, I failed to meet with a single pair, and I can not believe that the peculiar "song" of this bird would pass unnoticed. And yet, during the nesting season of 1921, I found two singing Flycatchers, both in characteristic locations, near Hamburg. Presumably, two pairs were breeding but, although a careful search was made in each case, neither nest was discovered.

The first bird was seen May 30, in a small swamp at the very edge of the uplands south of the village, within a mile or two of nesting Juncos (*Junco hyemalis hyemalis*) and Blackburnian Warblers (*Dendroica fusca*). The "song," as I heard it, was the dissyllabic "grea'-deal," as written by De Witt Miller, and quoted by Eaton in his 'Birds of New York.' The accent was on the "deal." The bird sang frequently, each utterance being accompanied by a noticeable swelling of the throat and a sudden upward jerk of the head.

A second visit was paid to this locality on June 5. The bird was found in the same place and was still singing at frequent intervals. However, on June 12, the date of my final observation, the Alder appeared to be much more quiet and was located only with considerable difficulty.

On June 18, while passing through a somewhat larger swamp on the lowlands north of Hamburg, I was surprised to hear a familiar "grea'-deal," and lost no time in locating another Flycatcher. This bird did not sing at all frequently, however, and might easily have been overlooked. The swamp also proved to be the home of a pair of Virginia Rails (*Rallus virginianus*), two pairs of Swamp Sparrows (*Melospiza georgiana*) and at least two pairs of Veeries (*Hylocichla fuscescens fuscescens*). Unfortunately, I was unable to revisit the locality until July 10, at which time the Alder Flycatcher could not be found.

My experience this year leads me to think that the Alder Flycatcher may be a more common summer resident in this general area than our present records would indicate. If suitable locations are carefully watched during May and early June, the bird may be found to be a regular breeder, although the pairs will be few in number and very locally distributed by reason of the choice of habitat.

Prior to the present year, my personal records contained spring and early fall migration dates, only, for this subspecies; and these dates were comparatively few in number. Moreover, I had never heard its notes, as the transients seen were invariably silent. The notes and habits of Traill's Flycatcher (*Empidonax trailli trailli*), however, were familiar to me, as I had found this form fairly common along Smiths River, in Douglas County, Oregon, during the early summer of 1914.—THOMAS L. BOURNE, *Hamburg, New York*.

An Albino King Bird at Prouts Neck, Maine.—On September 1, 2 and 3, 1921, I saw an albino Kingbird (*Tyrannus tyrannus*), in front of our cottage. The bird was pure white, save for a faint wash of gray on the outer tail coverts. There were five or six other Kingbirds in the flock, and they alighted on telegraph wires, and took short flights to the rocks on the beach. I believe the bird was also seen in Yarmouth, Me.—WM. PEARCE COUES, M.D., *Brookline Mass.*

The White-Necked Raven (*Corvus cryptoleucus*) in Boulder County, Colorado.—On December 21, 1921, I noted the White-necked Raven in deciduous trees along the foothills two miles south of Boulder. Two individuals were studied with good field glasses at a distance of twelve paces. Cooke states that R. A. Campbell noted the species here in 1894. So far as I can determine this is the last authentic record of the occurrence of the White-necked Raven in Colorado previous to this year. However Mr. Aiken states that in some sections of the state it was the commonest species of *Corvus* in 1871-2, and that a nest with seven eggs was found sixty miles east of Colorado Springs in 1878.—THEODORE R. BEARD, *1029 Univ. Ave., Boulder, Colo.*

Magpies, at Emmetsburg, Iowa.—On November 14, a man described to me a bird that I took to be the Magpie. Inside of a week this bird was reported to me by five different persons. Then, on November 25 it was reported by one who had known the bird in the northwest. On December 5 I saw two myself. On December 9 a man brought one to my study, which he had found caught in a mink trap. On December 12 I saw another; and that night a man brought one to me that he had shot. This one I have sent to the Department of Ornithology, State University of Iowa, to be mounted. I find, by conversing with duck hunters, that this bird is becoming rather common hereabout. I have been here seven years; have been an inveterate tramp; have made careful records of arrival and departure of birds, both spring and fall, and have never before seen the Magpie, nor heard of its being here.—LEROY TITUS WEEKS, *American School of Wild Life, Emmetsburg, Iowa*.

Starlings Nesting at Syracuse, N. Y.—While the Starling (*Sturnus vulgaris*) has been recorded in the vicinity of Syracuse since June 1919, no nests have been found so far as I have been able to learn. The

few reports of the occurrence of the starling in Onondaga County have referred to straggling individuals, a part of the advance guard from the lower portions of the state perhaps.

On April 25, 1921, Mr. Neil Hotchkiss and I discovered a Starling's nest near the lower end of Onondaga Lake. It was located in a dead tree which was hollow for a greater part of its length, and which was a rendezvous for a number of nesting Tree Swallows and English Sparrows. The tree was standing on the bank of the outlet to the lake and, as the water was high, the base was submerged. This prevented our examining the nest itself but we observed the birds at close range for some little time.

We reported the discovery to the Onondaga County Bird Club, of which we are members, and later the other members of the club visited the locality and verified our report. This is the first nest to be found in Onondaga County according to the records of the club, and we thought that it would be of interest to some of the readers of 'The Auk'.—FRANKLIN H. MAY, *Syracuse, N. Y.*

Evening Grosbeak at Stroudsburg, Pa.—Thinking it might be a matter of interest I want to report the presence here this month (December) of Evening Grosbeaks (*Hesperiphona vespertina vespertina*).

This bird has been a frequent visitor in these parts for a number of years though my first acquaintance with it in a personal way did not occur until the spring of 1919.

In my bird journal under date of April 22, 1919, I have noted "Three Evening Grosbeaks." My attention was drawn to their peeping note resembling somewhat the "peeper" frog. Their large size with yellow black and white in their plumage and the big conical bill or beak which at a distance looked white were the field marks by which I identified them. On April 26, 1919, a cold raw morning, I came across a flock of about 15, feeding on the seeds or "keys" of the Ash-leaved Maple or Box Elder.

In my bird journal for 1920 I do not find any record of their presence and I do not recall seeing them.

On a bright cold morning December 13, 1921, about 11 o'clock I was attracted to a large flock numbering at least 30 some of which settled on the tin roof of a porch across the street from where I was standing. For some reason they had been driven apparently from some Ash-leaved Maples where they had been feeding. I had a fine opportunity to see them close at hand. The next day December 14, I found another flock, possibly the same, feeding in a large Ash-leaved Maple in a yard near where I saw them the day before.

Again on Thursday morning December 29, I saw another large flock flying over, a few settling in a tree very near the same spot as reported above.

The Ash-leaved Maple or Box Elder is quite plentiful in this section both as a shade tree and in a wild state.

Knowing of the bird as a rather rare winter visitant in these parts or rather in this section of the United States, I thought possibly you might be interested in a report of their presence in Stroudsburg, Monroe County, four miles north of the Delaware Water Gap and about fifteen miles from the Poconos.—HERBERT W. WESTWOOD, *Stroudsburg, Pa.*

Evening Grosbeaks in Pike Co., Pa.—Shortly after noon on December 17, 1921, a flock of fifteen or twenty Evening Grosbeaks were under observation in Bushkill, Pa., for at least ten minutes. In previous years they have frequented the large shade trees in the village for weeks at a time but this year they seem to have ranged more widely as no more were seen until January 10, 1922, when a flock of similar size, probably the same birds, were noted in the vicinity of Coolbaugh, about five miles distant.—EDWIN B. BARTRAM, *Bushkill, Pa.*

White-throated Sparrow Summering in Autauga County, Alabama.—On June 19, 1921, while investigating a nest of the White-eyed Vireo on the edge of Pine Creek Swamp, two and a half miles from Prattville, I noticed a peculiar looking bird in the flock of Kentucky Warblers, Hooded Warblers, Wood Thrushes and other birds that came in response to the distress calls of the Vireo. I followed this bird into a blackberry patch and identified it as female White-throated Sparrow (*Zonotrichia albicollis*) and from the shaking and picking of its feathers I took it to be an incubating bird. A most determined search failed to reveal nest. On June 23, the same thing happened again; the same bird flitting from bush to brier and then on to the ground; allowing an approach to within six feet repeatedly. The male was observed on June 26, sixty or seventy feet south of where the female had been observed, keeping entirely to the ground scratching and picking most industriously. No female seen this time.

June 30, the female was seen at the same place and the male heard fifty or sixty feet south in trees twenty-five or thirty feet up.—LEWIS S. GOLSAN, *Prattville, Ala.*

Tree Sparrow (*Spizella monticola monticola*) in Georgia.—While spending a week or two in Augusta, Georgia, I discovered on February 25, 1921, three Tree Sparrows feeding on one of the lawns of that city. I am well acquainted with the "winter chippy," a dozen or two of whom spend part of each winter in our garden or vicinity. The dusky spot on the gray breast, the brown cap and whitish wingbars were unmistakable and the trio allowed us to come within 15-20 feet of them with the binoculars. At the time I did not realize that this was an unusual observation but all authorities which I have since consulted give South Carolina as the limit of their southern range. To be sure this is only across the Savannah river from that State, but I believe it constitutes a new record. Dr. Eugene Murphy of that city subsequently told me that he has long been

of the opinion that Tree Sparrows occasionally visit his vicinity, but in his years of collecting he has not succeeded in recording any.—AARON C. BAGG, *Holyoke, Mass.*

The Nesting of Henslow's Sparrow in Southern Connecticut.—

On May 19, 1921, while observing the migration, then at its height, I found a male Henslow's Sparrow (*Passerherbulus henslowi henslowi*). The bird was in a field near the Hemlock's Reservoir, Fairfield, Conn. At the time I was in the company of five others, Mr. and Mrs. Geo. Waldo of Bridgeport, Mr. and Mrs. L. F. Glynn of Fairfield, and Mr. Frank Novack of the Fairfield Bird Sanctuary. All of us observed the bird from a very short distance and in a clear light. I was first attracted to it by the song, the short one that has been written "fleezick." To me it sounded more like "tililip." I made a record of it, which, unless one considers a single "chebec" of the least Flycatcher a song, is the shortest bird song I have recorded, occupying but two-fifths of a second.

The bird was not in the sort of locality in which it is usually described as nesting, so that no thought of a possible nest entered my head at the time. Returning to this area alone on June 4, 1920, I found the bird still there, so that the possibility of finding its nest occurred to me. The area had been the usual typical dry field, with sweet vernal grass (*Anthoxanthum odoratum*) and the common white daisy (*Leucanthemum vulgare*) the most conspicuous forms of vegetation at that season. The Bridgeport Hydraulic Company, however had planted the area, a few years ago, with white pine (*Pinus strobus*). These trees had reached a height of two to four feet, and the bird was first found singing in their tops. Hunting about not far from the tree in which the male sang, I heard a slight sparrow "tsip." I should ordinarily have passed the note for that of a Field Sparrow, but being on the lookout for Henslow's Sparrow I thought I detected a slightly different quality in the note, and soon found it a second Henslow's Sparrow, evidently the female, for the male was still singing where I had first observed him.

I sat down to watch this bird, and waited for nearly an hour. The bird was evidently disturbed at my presence, and kept up a continual "tsipping," balancing herself in the top of a pine, and facing a strong wind that was blowing so hard as to almost unseat her. Little by little she approached a spot about which my suspicions centered, and finally ceased her "tsip" and dropped to the ground. I went to the spot and found the nest, with four young birds, so well grown that they left at my approach, and I was only able to catch one. This bird was essentially like its parents in most particulars, but had a pale gray colored down adhering to the feathers of the head and upper back. The down was so light in color that it may have been white when the birds were first hatched.

The nest was in a hollow of the grass on the ground. It was not under one of the pines, as I had rather expected it would be, but was more than

two feet from the nearest pine. It was made entirely of grasses, those of the lining finer than the others. On the south side it was roughly arched, like the nest of a Grasshopper Sparrow, but so crudely that I did not feel sure whether the birds had actually constructed the arch, or only built the nest in the shelter of a tuft of dead grass that already happened to be there.

The young were evidently expert at hiding in the grass, for after releasing the bird I had caught I could neither find it again, nor any of the other three birds. This is my first experience with this species, though farther north in Connecticut it is reported locally to be common. On my two visits the male sang only the short song, so that I have yet to hear the longer song described for this species.—ARETAS A. SAUNDERS, Fairfield, Conn.

Albinism in the Sharp-tailed Sparrow (*Passerherbulus caud-acutus*).—In 'The Auk' for October, 1921, pp. 604-605 I have a note under the above caption.

On December 16, 1921, I visited the place for the first time this season where I have recorded so many albinistic Sharp-tailed Sparrows. A short search among the multitudes of Sharp-tail, Acadian, Nelson's and Seaside Sparrows revealed the presence of two albinistic Sharp-tails, one with a pure white tail-feather and the other a mottled bird with white also in wing and tail-feathers. I went again to the place on December 31, and seeing again the two albinistic birds, shot the mottled example. This one, like all the others recorded has the abdominal and ventral region profusely spotted with black. This makes an uninterrupted strain of albinism for twenty-two years.—ARTHUR T. WAYNE, Mount Pleasant, S. C.

An Albino Swamp Sparrow (*Melospiza georgiana*).—On December 8, 1921, while collecting in a large field of broom grass in search of Leconte's Sparrow (*Passerherbulus lecontei*) I saw a pure white sparrow among a flock of Swamp, Song and White-throated Sparrows. By its flight I could readily identify it as a Swamp Sparrow and when I secured it I found that I had made no mistake. This bird was exceedingly shy and I flushed it repeatedly before I finally procured the specimen. It is entirely pure white with the exception of one normal rectrix, which is concealed by the other feathers overlapping it and another normal scapular feather. It is an adult male and was very fat.—ARTHUR T. WAYNE, Mount Pleasant, S. C.

Note on the Philadelphia Vireo (*Vireosylva philadelphica*).—In a recent note (Auk, Vol. XXXVIII, No. 4, p. 607) Mr. H. Mousley comments on the absence from my paper 'A Nesting of the Philadelphia Vireo' (Auk, Vol. XXXVIII, No. 2, p. 202) of any reference to his published records of the species. The absence of any such reference is due to the fact that it was in October, 1919, (Auk, Vol. XXXVI, No. 4, p. 486) that Mr. Mousley's first record of this species was published, while

it was in August, 1919, that my paper was accepted for publication in 'The Auk'.

In the same note Mr. Mousley says: "It will be noticed that with one exception all the birds seen by me were in the fall of 1919, the year they bred at Bergerville." Philadelphia Vireos bred at Bergerville, P. Q., in 1920 also, for on July 11 of that year I found a nest of this species containing young birds in a white birch in dense woods near my residence. After the young had flown I secured this nest, which was 38 feet from the ground and 8 feet from the top of the tree, and presented it to Mr. Mousley with relative data. I was not resident at Bergerville in the summer of 1921, but, in the absence of further evidence, there appears to be no ground for supposing that the breeding of Philadelphia Vireos in that neighborhood is sporadic.

Mr. Hoyes Lloyd has kindly called my attention to an error in the closing sentence of my paper above referred to. In the next to the last line of text on page 202 of 'The Auk,' Vol. XXXVIII, No. 2, for "Brewster" substitute "Dwight," with the reference " 'The Auk,' XIV, pp. 259-272. July, 1897."—HARRISON F. LEWIS, 92 Argyle Ave., Ottawa, Ont.

Golden-winged Warbler Nesting at Waterford, N. Y.—Although the Golden-winged Warbler has a record of being seen only once in Saratoga county, N. Y., it is really a common breeder in the south-east corner of the county. Ten pairs nest in a small ravine two miles north of Waterford in that township. Several pairs nest in a larger ravine four miles north of Waterford. They arrive May 15, and are common as migrants until May 3. This warbler also nests two miles east of Troy, N. Y., on the Poestenkill creek, about seven miles south-east of the Waterford nesting spot.—EDGAR BEDELL, Waterford, N. Y.

Hooded Warbler Near Elizabeth, N. J.—On June 19, 1921, the writer found a singing male Hooded Warbler (*Wilsonia mitrata*) in a patch of bushy and well watered woods among the hills of the Essex County Park Reservation, not far from Milburn, N. J., and well within a ten mile radius from Elizabeth. The bird was joined by a female, evidently its mate, and the concern evidenced by both birds as I searched about indicated that they were breeding in that vicinity, though in the time at my disposal I failed to locate the nest. This is my first summer or breeding season record of the Hooded Warbler in this section of New Jersey.—CHARLES A. URNER, Elizabeth, N. J.

A Deceived Yellow Warbler.—While W. F. Coultas, assistant in the Museum, State University of Iowa, and I were searching for Yellow Warblers' nests in which the birds had built a second bottom in order to cover an intruded Cowbird's egg, we found one that we saw plainly had two bottoms. On opening the lower part to get a sight of the covered egg, we discovered a small acorn, which the bird had evidently mistaken for a Cowbird's egg.—LEROY TITUS WEEKS, Emmetsburg, Iowa.

Piairie Warbler (*Dendroica discolor*) in January in South Carolina.

—On January 9, 1922, I saw and thoroughly identified an adult male of this species within a few hundred yards of my house while it was searching for food in a thicket of lavender bushes. I fired at it with my auxiliary but am certain that I missed it, nor could I find it again after searching carefully all the surrounding country day after day for two weeks.

This is the first instance of my seeing this bird in the autumn (or winter) later than October 24.—ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

The Mockingbird at Prouts Neck, Maine.—On September 13, 1920, I saw a Mockingbird (*Mimus polyglottos polyglottos*), in the bushes near my cottage at Prouts Neck. Identification was certain. The bird had been seen for several days previously, but was at such a distance that there was some uncertainty as to the identity until the above date.—WM. PEARCE COUES, M.D., *Brookline, Mass.*

An Unusual Mockingbird Record.—During the first week in May 1921, a single Mockingbird lingered in Bushkill for at least one day and maybe longer. Its appearance was heralded by a period of full song from the shrubbery near the house about six thirty in the morning following which the bird was closely observed at intervals during the day. The unmistakable flash of white in the wings and tail against a background of hemlock covered mountains made a memorable picture of rather unusual composition.—EDWIN B. BARTRAM, *Bushkill, Pa.*

A Question Concerning the Distribution of the Long-billed Marsh Wren.—The ecological factors governing the distribution of the Long-billed Marsh Wren (*Telmatodytes palustris palustris*) are simpler than those for most birds. The bird breeds mainly, if not entirely, in cattail marshes, not only nesting, but obtaining all its food in such areas. It is also extremely local in distribution, being found only in certain cattail marshes, and entirely absent in others apparently equally well suited to it.

The cattail marshes are composed of two species of cattail, a broad leaved species (*Typha latifolia*) and a narrow-leaved (*Typha angustifolia*). The broad-leaved species occurs commonly in many places, but the narrow-leaved is more local. Many marshes are composed of the broad-leaved species alone, but I do not remember to have seen a marsh where the narrow-leaved species grows alone. It has been my experience that the Long-billed Marsh Wren is found only in these marshes containing the narrow-leaved cattail. I have noted this for a number of years on the Connecticut coast and have recently observed the same fact in western and central New York, finding the Marsh Wrens abundant in marshes at Syracuse where the narrow-leaved cattail was common, but absent in certain marshes of Cattaraugus County where only the broad-leaved cattail grew.

My observation of this association of plant and bird species may be merely coincidence. It would be interesting to hear from others who know not only the birds, but the two species of cattail. If there is a definite relationship between the distribution of *Typha angustifolia* and the Long-billed Marsh Wren, it may be because the narrow-leaved cattail makes a better nesting material, or perhaps because the wren's feet can more easily clasp the narrow leaves and more slender stems of this species.—ARETAS A. SAUNDERS, *Fairfield, Conn.*

Parkman's Wren near Chicago.—A pair of Wrens collected by Colin Sanborn at Beach, Illinois, April 24, 1921, were sent to Mr. Outram Bangs for identification and proved to be *Troglodytes aedon parkmani*. Another specimen (♂ 23749) was taken by the writer at Deerfield, Ill., May 15, 1921.

This western race seems to be gradually extending its range to the eastward but is a rare bird in Illinois.—HENRY K. COALE, *Highland Park, Ill.*

The Willow Thrush (*Hylocichla fuscescens salicicola*) on the Coast of South Carolina.—On October 7, 1921, I shot a female of the year of this western representation of Wilson's Thrush, and another young female at the same place, both of which had been feeding upon the berries of the viburnum.

I compared these birds with two specimens of *salicicola*, one from Washington, D. C., September 2, 1920,¹ and the other taken by Dr. Elliott Coues in Dakota and loaned to me by my friend Mr. J. H. Riley from the U. S. Nat. Museum collection, and they agreed perfectly with them.

The first record of the occurrence of this form in South Carolina was made by Mr. Leverett Mills Loomis from a specimen taken by him at Chester on October 5, 1888, and recorded in 'The Auk,' VI, 1889, 194. This record is cited by Mr. Ridgway in 'Birds of North and Middle America,' Part IV, 1907, 69, but is omitted in the A. O. U. 'Check-List' for 1910 and also in Dr. Chapman's 'Birds of Eastern N. A.,' 1912.

All species as well as subspecies of the genus *Hylocichla*, with the exception of the western forms of the Hermit Thrush, have been taken in and recorded from South Carolina, which is the only State from which all these forms have been recorded.—ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

Notes from Lawrence, Kans.—Thryomanes bewicki bewicki.—BEWICK'S WREN.—In the January issue of 1921 of the Auk Dr. C. E. Johanson of the University of Kansas reports the finding of a Bewick's Wren in the spring of 1920. My field notes show that a specimen was recorded in the spring of 1919, but too late to be listed in the Douthitt list of birds which was already partly off the press. The wren was observed in a patch of low shrubbery, largely buck-brush, at the edge of a thin

¹ Auk, XXXVIII, 1921, 463.

tract of timber northwest of the University but still in the city limits. I am familiar with this wren because of almost daily observations of it in another state in previous years. Its habits and calls are well known by me moreover the specimen permitted a long observation at close range so that all marks were easily and definitely identified.

Passerina ciris. PAINTED BUNTING.—In the spring of 1918 a pair of Painted Buntings appeared in Lawrence. They selected a nesting site in a Mahonia bush which grew at the side of a fire-place chimney. The location was in a thickly settled residence district on Louisiana street. They hatched out a brood of four and all observations show that the young passed safely through the time of hatching and departure from the neighborhood. The next year (1920) a pair again appeared in the same locality. They remained thereabout throughout the season and evidently had a nest nearby, but it was never located. They were not reported the following season.

Zenaidura macroura carolinensis. MOURNING DOVE.—In June of 1921, we discovered a Dove's nest built upon a Robin's nest of that season. The nest was located in an old decayed apple tree. The few twigs that had been carried in served as a resting place for one Robin's egg, already pipped, as well as for the two Dove's eggs. Just before the hatching of the Dove brood the Robin egg disappeared.—BESSIE D. REED, Lawrence, Kas.

Notes on the Birds of the Beaver River Valley in Saskatchewan.—The following notes, I believe, are of some value as extending the known distribution of a few birds, none of which are uncommon or difficult to find in the region named. The first three in my list have not, so far as I know, been mentioned in any published list of Saskatchewan birds.

Piranga ludoviciana. WESTERN TANAGER.—Common at Big River. I have also seen it at Lac la Ronge, where, however, I found it difficult to approach, though very alluring because of its frequently heard song.

Wilsonia canadensis. CANADA WARBLER.—Occasionally seen at Big River. It was common at Green Lake, in August, 1919.

Nannus hiemalis. WINTER WREN. Abundant in the spruce bogs about Big River.

The following have been reported from other parts of Saskatchewan.

Ardea herodias. GREAT BLUE HERON.—Not seen in 1919; but frequently in 1920, and in widely separated parts of the region, from Ladder Lake (near Big River), the Crooked River, the mouth of the Dore River, to the north end of Peter Pond Lake (Buffalo Lake), where it was shot by an Indian, who showed it to me with the comment that he had never seen its like before. He laughed scornfully at the thought of eating it—for it was disappointingly unappetizing in its gauntness.

Lagopus lagopus. WILLOW PTARMIGAN.—Four specimens, shot in their winter plumage (in late December) were sent to me in the winter

of 1920-21, from Green Lake, Sask. I call the attention of ptarmigan specialists to the fact that all four had the *shafts of the primaries black*. I have seen no other Saskatchewan ptarmigans.

Archilochus colubris. RUBY-THROATED HUMMING-BIRD.—Occasionally seen in July along the Beaver River, as far north as Ile a la Crosse. The Hudson's Bay Company Agent at Lac la Ronge tells me that it occasionally visits his flower-garden in summer; but I did not see it there myself.

Dendroica palmarum. PALM WARBLER.—A dried specimen has been sent to me from Green Lake, Sask. (The covering letter says, "a very pretty little bird.")—JOHN SMITH DEXTER, *Saskatoon, Sask.*

Bird Changes Caused by the Winter of 1917-1918.—The bleak winter of 1917-1918, which broke most records for cold or long winters, made some remarkable changes in bird-life here, many of which yet remain. The Mockingbird, the Carolina and Bewick's Wrens seem to have suffered most, and did not become normal in numbers until the winter of 1919-1920. The Golden crowned Kinglet, once very plentiful in winter, was very scarce until the spring migration of 1921, since which time they have been almost normal in numbers. The Tree Sparrow, so far as I know, was never reported from here until that winter and even old bird students had never seen one. A few wintered here in 1917-1918, several the next winter, even more in 1919-1920, and they were positively abundant in 1920-1921. So far I have not seen them this winter, 1921-1922, but the weather has been very mild, up until Christmas. Another interesting thing about this bird is the way it has prolonged its stay in the spring. In 1918 it left Feb. 12; in 1919, Feb. 18; in 1920, Mar. 12; and in 1921, Mar. 6. Mr. A. F. Ganier of Nashville, Tennessee, reports that the Tree Sparrow has had much the same history in middle Tennessee as it has had here since the record-breaking winter. The Towhee, once quite plentiful in winter, has just now regained its former abundance. Just how permanent these changes are or how general in extent they are, it will take a long time to tell, but I should like to hear from many sections of the country on this subject.—GORDON WILSON, *State Normal School, Bowling Green, Kentucky.*

Arkansas Kingbird and Egrets in Connecticut.—On the afternoon of November 4, 1921, while crossing a section of pasture land in east Meriden I noticed two birds flying to a large tree about fifty yards distant. They alighted a few feet apart, almost facing me, and I trained my eight power glasses on the smaller and unfamiliar bird,—for the other was a Robin.

At first glance it reminded me of the Crested Flycatcher; for the belly and lower breast were of a clear yellow, but above this a light ash shading to an almost white throat. The uncrested head was also of a much lighter shade than *Myiarchus crinitus*, and although no crown patch was visible there was a darker section from the lores to the auriculars.

Feeling certain that this bird was not an unusually late *M. crinitus* (my latest record being September 16) I began circling the tree to obtain a clear view of the lower back and tail then hidden by the branch, but unfortunately before I had taken a half dozen steps both birds took fright and vanished in the distance.

Although the observation was short, and the white web of outer tail feathers was not visible I feel convinced that this bird was the Arkansas Kingbird (*Tyrannus verticalis*), for it was not the well known Crested Flycatcher of our Connecticut woods and orchards.

While the "wanderlust" of the American Egret has enabled northern bird students to report small groups of *Casmerodius egretta* during the past summer I might add that at sundown on September 4, 1921, I saw a white fleet of twenty of this species and with them two Great Blue Herons flying westward at Saybrook Point, Connecticut.—LESTER W. SMITH, Meriden, Conn.

Notes on Early Summer Birds of the Virginia Coast.—The following notes were made during a visit to Wallop's, Cobb's, Pig and Bone Islands, Virginia, from June 28 to July 2, 1921, in company with C. K. Roland. Apart from the observations on the breeding birds, the results of the trip seemed to me of unusual interest, due to the abundance of many species of shore-birds and water-fowl which we had no idea of meeting in this vicinity at this particular time of the year.

One is naturally led to speculate on the reasons for the presence of many of these birds so far south at so early (?) or late (?) a date. A search of the available migration records for the states to the north seem to shed no light on the subject and we are still at sea as to whether: (1) the present year has been an unusual one for the earliness or lateness of migrants; or, (2) the islands in question, because of their isolation, form a haven of refuge for many barren, crippled, or non-breeding birds or (3) many individuals of the species in question pass directly over a large portion of our Atlantic seaboard on the southward flight and may appear here long before they are to be expected in more northern latitudes.

June 27 to 29 inclusive, were spent on Wallop's Island, Accomac County, where, under the protection of the Wallop's Island Association, the owners, a couple of colonies of possibly 40 pairs of Least Terns, and a somewhat smaller number of Common Terns were nesting. Piping Plovers were also rather plentiful, and we saw several of their half-grown young along the deep wind-swept beaches at either end of the island. Among the other breeding species of note we might mention the Boat-tailed Grackles, which were quite common, although this is about the northern limit of their breeding range.

On June 27 we saw three female or immature Red-breasted Mergansers, and the following morning came upon one resting on the beach along one of the inlets. On June 29 a flock of ten Double-crested Cormorants flew over, heading north, and Black Terns were noted on both the 29th and 30th.

On the evening of June 30, upon our arrival at Cobb's, we found possibly twenty Black-bellied Plovers, all in the winter plumage, four Turnstones, and a male American Scoter, within a few hundred yards of our landing place.

On the following day we made a trip to the northern end of the island, and a brief visit to Pig Island, which is accessible by wading for a couple of hours during low tide. Here we found an immense colony of Skimmers in possession of the island, which is probably no more than three feet above ordinary high-tide at its highest point. Their nests were so close that we had difficulty in picking our way among them, and during our visit the air was filled with their graceful, if somewhat grotesque forms. They were easily the most abundant birds on the island, although our stay was too short to attempt any estimate of their numbers. We were told that a recent visitor to this particular island had tarried too long and had only been saved from spending the night on the island by the timely assistance of a passing fisherman.

On the adjoining beach of Cobb's we spent a very interesting half-hour with a young Oystercatcher which was just in that awkward stage between the downy and juvenal plumage, although it was fully as large as an adult Upland Plover. Its sprinting ability would have done credit to a young ostrich had it chosen a straightaway course, but the plaintive peeping of its parents in our rear caused it to double back, and a well-placed hat impeded its progress until we gathered it up and placed it in an improvised pen in the hatchway of a nearby piece of wreckage.

After trying vainly to find an exit it soon became quiet and allowed us to handle it quite freely, lying flat on the sand much of the time, while we examined, sketched and photographed it. A few minutes later we gave it its liberty and when last seen it was racing pell-mell down the beach toward its parents. As nearly as I could judge there were probably half a dozen pairs of these striking birds on the island at the time, doubtless all breeding.

Laughing Gulls, Gull-billed, Common and Forster's Terns, Clapper Rails, one or two pairs of Willets, and possibly the same number of Wilson's Plovers were also seen on the island during the course of the day. The Least Terns have never returned since the days of their millinery popularity, and, we were also told by Captain Isdell, the genial and interesting proprietor of the hotel, that the Laughing Gulls had entirely forsaken a portion of marsh near the hotel after being scared off several years ago by a flash-light.

The migrant birds were particularly interesting, too: Black-bellied Plovers, a large flock of Knots, several in the spring plumage, and one Semipalmated Plover being seen along the beach.

It was on July 2, however, while on a visit to Bone Island, at low tide, that we saw the unusual spectacle, for this season, of myriads of Knots, Dowitchers, Sanderlings, Least and Semipalmated Sandpipers, with a

few Pectoral, White-rumped, and Red-backed Sandpipers, Black-bellied and Semipalmated Plovers, a Wilson's Snipe and a Turnstone, scattered over the broad mud-flats toward the landward side of the island. Toward the seaward side, which is scarcely higher than Pig Island, were hundreds of Skimmers, Terns, Gulls, and a scattering of Oystercatchers, circling about, or perched in "rafts" along the low flat bars exposed by the tide and in the bay a solitary Horned Grebe and a Red-breasted Merganser were riding the swells. The whole scene formed a very fitting climax to one of the most enjoyable and profitable ornithological pilgrimages in which it has my good fortune to participate.—E. L. POOLE, *Reading, Pa.*

Some Records from the Madison, Wisconsin, Region for the Spring of 1921.—

1. *Chaulelasmus streperus*. GADWALL.—Four individuals observed on May 6.

2. *Bartramia longicauda*. UPLAND PLOVER.—One specimen on fence post. Allowed two observers, on foot, to approach within fifty feet.

3. *Buteo borealis krideri*. KRIDER'S HAWK.—One individual, in flight, studied at close range, directly over-head. It was engaged by several crows, and remained under perfect observing conditions for a considerable period.

4. *Falco peregrinus anatum*. DUCK HAWK.—Mr. Herbert Stoddard of Milwaukee introduced me to two nesting sites of the falcon, both about twenty-five miles northwest of Madison, and both on lofty and relatively inaccessible rock ledges. Each contained young birds. Mr. Stoddard, in the initial article of this 'Wilson Bulletin' of December last, has written the record of his connection with both nests.

5. *Phloeotomus pileatus abieticola*. NORTHERN PILEATED WOODPECKER.—Several birds heard or observed in this extreme northwestern part of Dane County along the Wisconsin River and in Sank County through which this Baraboo Range of sharp and rugged hills extends. The forbidding nature of the region renders it safe from easy pedestrianism and constitutes it one of the last stands in southern Wisconsin for these epic woodpeckers.

6. *Empidonax virescens*. ACADIAN FLYCATCHER.—One singing male collected on May 25.

7. *Sturnella neglecta*. WESTERN MEADOWLARK.—This bird seems to be growing more common with us. During the spring of 1921, I heard six or seven singing, and doubtless nesting, birds. The types of country selected by *neglecta* was identical with that chosen by *magna*.

8. *Chondestes grammacus grammacus*. LARK SPARROW.—One singing male collected from a small nesting colony twenty-five miles to the north-west of Madison on April 30. The colony has been established on its restricted sandy flats for a number of years.

9. *Zonotrichia querula*. HARRIS'S SPARROW.—One male bird observed near Madison on May 21.

10. *Spizella pallida*. CLAY-COLORED SPARROW.—One or two pairs of Clay-colored Sparrows, the remnant of a very small colony from which the writer took a set of eggs three years ago, nested in the Lake Forest district in the environs of Madison in the spring of 1921. It may be of interest to record the following fact: if one were to describe an arc with a diameter of about a third of a mile, at one foot, in a marsh meadow, he would find a small colony of nesting Henslow's Sparrows at the other foot, in a dry, rolling, bush-studded field, the Clay-colored Sparrows; and in the upland meadow adjacent to the latter, a thriving colony of Grasshopper Sparrows.

11. *Spiza americana*. DICKCISSEL.—Last year was decidedly a Dickcissel year in the Dane County region. The birds were abundant. I have heard as many as a hundred singing during the course of a long day's trip through favored districts.

12. *Protonotaria citrea*. PROTHONOTARY WARBLER.—These warblers are rated as common in the north-western part of Dane County along the river-bottoms of the Wisconsin. The bird life in these heavily timbered flats was often representative of the upper-austal zone rather than the transition. There were numerous Red-bellied Woodpeckers; fairly numerous Cardinals, Blue-grey Gnatcatchers, Louisiana Water Thrushes, and Red-shouldered Hawks; a Yellow-breasted Chat; and in the vicinity, nesting Cerulean Warblers, and at least two Bewick's Wrens.

13. *Vermivora celata celata*. ORANGE-CROWNED WARBLER.—One specimen observed on May 17.

14. *Dendroica cerulea*. CERULEAN WARBLER.—Birds observed in Baxter Hollow, Sank County, on June 12.

15. *Seiurus noveboracensis notabilis*. GRINNELL'S WATER-THRUSH.—Two specimens collected near Madison.

16. *Seiurus motacilla*. LOUISIANA WATER-THRUSH.—Two specimens collected along the Wisconsin River bottom lands in Dane County.

17. *Icteria virens virens*. YELLOW-BRESTED CHAT.—One bird heard singing in a clearing in the Wisconsin River bottom lands. One pair, probably nesting birds, seen in mid-June in the Winga Lake region on the outskirts of Madison.

18. *Thryomanes bewicki bewicki*. BEWICK'S WREN.—I studied one of a reported nesting pair closely. (Mr. S. Paul Jones later verified my identification.) Mr. Herbert L. Stodderd a week or so before had wounded and failed to secure another specimen in a distinct half a mile away. These wrens were in the vicinity of Sauk City. On April 15, 1916, I identified another Bewick's near Madison. The species should be removed from the hypothetical list of Wisconsin birds.

19. *Baeolophus bicolor*. TUFTED TITMOUSE.—On February 1, I collected a specimen near Madison, the second or third collected specimen on record for the state, so far as I know.—WARNER TAYLOR, 219 Clifford Court, Madison Wisconsin.

Notes on Connecticut Birds.—On April 24, 1921, I saw a Turkey Vulture (*Cathartes aura septentrionalis*) soaring over the Woodway golf course. The place where the bird was seen was about five miles north of Long Island Sound. There was a stiff west wind blowing, following a strong east wind and rain the day before. The day was warm, in the early spring. The bird was soaring in a characteristic manner and drifting eastward. The bird was some distance away, but I observed it for some time, and its size and general contour and method of flying were identical with what I had often observed of the Turkey Vulture in the southern states, and I think there can be no doubt of the identification.

This is the first one of these birds that I have ever seen in Connecticut, and the number reported for Connecticut is so few that it seems worth while to add this to the list.

On October 15, 1921, I collected a female Scarlet Tanager (*Piranga erythromelas*). It was feeding in a flock of Field Sparrows and Chippies. The latest previous record that I find is recorded in 'The Birds of Connecticut' under October 10, and it seems perhaps worth while to add this record as the latest occurrence of the bird.—LOUIS H. PORTER, *Stamford, Conn.*

Spring 1917 Migration of Shore Birds at Branchport, N. Y.—The spring of 1917, was rather dry and the water in the lake was low leaving exposed some of the muddy shore at the edge of the marsh and the long sandbar was completely above the water.

Probably due to this fact an unusual number of shore birds stopped here the latter part of May.

The Red-backed Sandpiper (*Pelidna alpina sakhalina*) is a regular fall migrant here but is rarely seen in spring. May 20 twelve Red-backs stopped here with a large flock of Least, and Semipalmated, six Greater Yellowlegs, two Lesser Yellowlegs and ten Semipalmated Plover. Two Red-backs were seen May 31.

May 27 was a dull day with occasional light showers and a great bunch of shore birds came in. There were several hundred Least and Semipalmated Sandpipers and Semipalmated Plover on the mud at the mouth of the inlet. They were noisy and active, chasing each other and chattering, the Plover making little squeaks and grunts. On the gravelly bar were as many more Least and Semipalmated Sandpipers and Semipalmated Plover and at least fifty Red-backed Sandpipers and nine Turnstones. In the afternoon seventeen Knots joined the great whistling, chattering bunch. This is my first record of Turnstones and Knots.

Other birds on the lake at this time were, large flocks of Ring-billed and Bonaparte's Gulls, about forty Common Terns, eight Black Terns, one American Merganser, female, several small flocks of Lesser Scaup-Ducks, six White-winged Scoters and two Loons.

Another flock of about fifteen Knots stopped on the bar about an hour on May 29.—VERDI BURTCH, *Branchport, N. Y.*

Rare and Uncommon Birds at Branchport, N. Y.—

Hesperiphona v. vespertina. EVENING GROSBEEK.—Eight Evening Grosbeaks were in a locust tree feeding on the seeds, in front of my house, the morning of March 16, 1920, and were seen again farther down the street the same day. Ten Evening Grosbeaks were seen two miles north of Branchport March 17, and four more April 16. On November 17, 1921, after a rainy night, thermometer 46° F, four Evening Grosbeaks were feeding on the seeds of some maples in the street. There were three males and one female and they were feeding quietly for about one-half hour then, with a sudden impulse all flew off southwest.

Sterna caspia. CASPIAN TERN.—There is a long narrow sand bar in lake Keuka that extends nearly across the harbor at Branchport. In the spring when the water is high it is broken into several long narrow islands with very shallow water between them. And here the Caspian and Common Terns and Bonaparte's, Herring and Ring-billed Gulls congregate to rest and sleep. My records for Caspian Terns not before reported are: April 23, 1920, five seen; April 28, one seen; May 1, four seen; May 3, one seen; May 9 one seen, the last for 1920. April 23 1921, was cloudy in the morning, thermometer 56° F., one Caspian Tern was seen, April 25 there were fourteen Caspians, the largest number that I ever saw together. May 14 at 7 P. M. I heard the peculiar rasping cry of a Caspian Tern and saw it circling around over the village. It seemed to be excited and flew round and round several times then started off northwestward, then I saw four more much higher up and going in the same direction and the first one joined them as they passed on. The Caspian Tern has been a regular spring visitant at Branchport since 1917.

Sterna hirundo COMMON TERN.—The Common Tern has appeared at Branchport regularly every spring since 1917. The records not before reported are, three seen May 10 and three seen May 20 1920. In 1921, a flock of twenty Common Terns came on the lake May 15, there were six or eight May 19, four May 22 and last, a single one was seen May 27.

Marila collaris. RING-NECKED DUCK.—May 3, 1900, a flock of Ring-necked Ducks were on the lake at Branchport for several hours and Nov. 11 1921, I saw a single Ring-necked Duck in the harbor.

Micropalama himantopus. STILT SANDPIPER.—Sept. 10, 1902, I noted a Stilt Sandpiper feeding with two Yellowlegs on the muddy shore. It stayed on all day and all day the 11th.

Passerherbulus nelsoni nelsoni. NELSON'S SPARROW.—Sept. 15, 1921, I flushed a small sparrow from the thick marsh grass and it lit in the cat-tails about two rods ahead. I had a good look at it with eight power binoculars and did not hesitate to name it a Nelson's Sparrow. I had gone on but a short distance when a second one flew up from the grass and lit in the cat-tails giving me a good chance to study it. Oct. 7 and again the 8th I saw a Nelson's Sparrow in this same place. These are my only records of Nelson's Sparrow for Branchport, though I have one spring

and two fall records of the Acadian Sparrow. (The Auk, Vol. XXXVII, p. 307.)

Phalaropus fulicarius. RED PHALAROPE.—Oct. 12, 1921, 9.30 A. M. I saw a Red Phalarope with a flock of Pectoral Sandpipers. It was energetic and quick in its movements and soon left the Pectorals behind, taking short runs, wading out in the shallow water and swimming the muskrat runways all the time picking up food. Three hours later it was gone and I did not see it again.

Xema sabini. SABINE'S GULL.—A Sabine's Gull shot on lake Keuka at Branchport, Oct. 29 1921. It was an immature bird and the only one seen. There seems to be only one other record of Sabine's Gull in western New York, that of Dr. E. H. Eaton's specimen which was taken on the Montezuma Marshes about the year 1887 (Birds of New York, Eaton, Vol. I p. 137).—VERDI BURTCH, Branchport, N. Y.

A Strange Migration.—This locality is in eastern Iowa and about 65 miles north of the Missouri line. The weather during the early part of January 1922, had been what one might call "fine winter weather." The temperature had been oscillating between zero and 32° above F. From January 12 to 18 there had been no snow at all and the ground was bare. On the 18th at 3:00 P. M. a very fine snow began to fall. By 9:00 P. M. the ground was covered with about two inches. There was not a breath of air moving. The night was perfectly still, the temperature was 18° F. above and the fine snow flakes continued to descend lazily to the earth.

At 9:00 P. M. small voices began to be heard in the distance towards the northwest. Presently they were overhead and in every direction. Judging by the volume and quality of the sound, the travelers must have been a large concourse of small birds. They were moving in a southeasterly direction. For one and one-half hours I heard their voices, many of them. I could hear them as they were approaching, could hear them overhead and for a considerable distance after they were past. The flight of birds was continuous though many more could be heard at some times than at others. Several thousand birds, at least, must have passed this locality during that time. All these birds seemed to belong to one species. Their note is somewhat like that of the Bluebird but higher in pitch and varied occasionally by a little short trill. I have heard these same voices before in this locality but always in the air, at night, and during migration time in spring or fall but never before, in the middle of winter!

At 10:30 the wind began to moan and sigh in the tree tops and the flight of the birds ceased. Gradually the northwest wind became more boisterous and the temperature fell to 5° F. below zero during the night. Next day was fair and cold.

This peculiar and interesting phenomenon at once raises several important questions. What species of birds were these? Where did they

come from? Did they intuitively know or feel the approach of the cold wave or did the storm stir them up and did they gain an hour and a half on the wind by their more rapid flight? If, as would seem, these are migratory birds, how can we account for the fact that they did not move south in December when the temperature went down to 7° F. below zero and the ground was also covered with snow?

These all appear to me to be matters of considerable scientific interest.
—E. D. NAUMAN, *Sigourney, Iowa.*

Bird Banding as an Opportunity to Study Character and Disposition.—Birds and animals have as much character and disposition as people, and bird banding offers an excellent chance to study individuality in birds when they are actually in your hands, where you may make a close up examination and note their actions.

At the Waukegan, Ill., Bird Banding Station I have studied the action of the birds handled for the last five years and have noted some very interesting characters in the different birds handled.

The White-throated Sparrows arrived at our station about October 4, and kept coming until October 25, when the last new bird was banded, and from them on only a few repeating birds trapped. These seemed to like our restaurant and became regular boarders. Early in November we noticed that a certain five were always together in some of the traps at night. We handled them so often that it was noticeable that each had a different disposition. There was the 'Fighter,' the 'Squealer,' the 'Quiet One,' the 'Kicker,' and one just ordinary bird, which tried a little of all of the actions of the other four.

A Golden-crowned Kinglet was trapped and seemed so surprised that it laid perfectly quiet while I put the band on its leg and when released it just stood up, straightened out its feathers and then calmly looked me over for a full minute before flying to the nearest limb.

A female Downy Woodpecker trapped last year squealed all the time it was held and when trapped again this year it squealed louder and longer than before; other Downies would fight but were quiet.—WM. I. LYON, *Waukegan, Ill.*

A Correction for Lake County, Minnesota, Birds.—In my 'Additions to the Birds of Lake County, Minnesota' (General Notes, Vol. XXXVIII, 1921, of *The Auk*), *Pelidna alpina sakhalina*, the Red-backed Sandpiper, is erroneously listed; this should have been, instead, *Micro-palama himantopus*, the Stilt Sandpiper.—CHARLES E. JOHNSON, *University of Kansas, Lawrence, Kas.*

RECENT LITERATURE.

Chubb's 'Birds of British Guiana.'¹—The second and concluding volume of this notable work has at last appeared, having been long delayed by war conditions. In our notice of Volume I we commented on the invaluable work of the late Frederick Vavasour McConnell, upon whose collection the report is primarily based, and on the generosity of Mrs. McConnell who has provided for the publication of the volumes.

With regard to the present volume we can say that it is fully up to the high standard of its predecessor as regards the work both of the author and publisher. The introduction contains an itinerary of the second journey to Mt. Roraima in August 1898, covering some seventy pages, by Mr. John J. Quelch who accompanied Mr. McConnell; a most interesting and thrilling account of the experiences of the party, with comments on both the fauna and flora of the regions traversed. Half-tone views of the summit of the mountain and portraits of natives serve as illustrations.

The main text covers the passeriform birds, 367 in number with ten colored plates and 204 useful text figures, of heads, bills, tails, and wings, all of which are drawn by Grönvold.

We find only three new forms described in this volume—*Grallaria regulus roraimae* (p. 80); *Vireo roraimae* (p. 393) and *Pachysylvia thoracicus abariensis* (p. 395), but no less than twelve genera and forty-two new species and subspecies have been published elsewhere as the work progressed, all based upon a study of the McConnell collection. The genus *Vavasouria* named in his honor is proposed for the remarkable white Bell-bird formerly known as *Casmorhynchus*.

Mr. Chubb's treatment is very satisfactory, the descriptions are full, the synonymy admirable and the accounts of habits selected from the writings of the best authorities on the ornithology of British Guiana—Quelch, Brown (Canoe and Camp Life), Schomburgk, Beebe, etc. The work is likely to remain the authoritative one on the birds of British Guiana for some time to come and will be an important aid to the many ornithologists whose attention is now being directed to the neotropical avifauna.—W. S.

Bannerman on the Canary Islands.² This interesting book is the out-

¹ The Birds of British Guiana, based on the collection of Frederick Vavasour McConnell, Camfield Place, Hatfield, Herts. By Charles Chubb, F. Z. S., M. B. O. U., Zoological Department, British Museum. Vol. II. London: Bernard Quaritch, 11 Grafton Street, W. 1921, pp. 1-xcvi+1-615 royal 8vo. 8 half-tone plates, ten colored plates and 214 text figures.

² The Canary Islands Their History, Natural History, and Scenery. An account of an Ornithologist's Camping Trips in the Archipelago. By David A. Bannerman, M. B. E., B. A. (Cantab.), M. B. O. U., F. R. G. S., Etc. With Illustrations and Maps. Gurney and Jackson. London: 33 Paternoster Row. Edinburgh: Tweeddale Court. 1922, 8vo. pp. 1-xv + 1-365, 84 illustrations and maps. Price 30 shillings net.

come of ten trips to the Canaries to investigate the avifauna of this famous island group on behalf of the Bird Department of the British Museum. The ornithological report comprises Parts II and III, which treat in detail the author's several expeditions, while Appendix "B" gives a systematic list of the species of birds known from the islands, and 25 others of doubtful occurrence. The ornithological report has already been published in 'The Ibis' and has been reviewed in these columns.

Incidentally the author explains that the investigation of the bird life required the acquisition of some knowledge of the geology and plants of the islands and thus material was secured for Chapters II-VI, which cover these subjects and the more general problem of the distribution and origin of life on the islands.

An introductory chapter treats of the discovery, conquest and early history of the Canaries which will prove of much interest to anyone studying the natural history of the group.

The volume is fully illustrated with views of the country, maps, and several excellent colored plates of birds. All in all Mr. Bannerman has produced a volume which cannot but please the general reader who is interested in travel and exploration, while it demonstrates clearly the methods of intelligent present day research. Collecting and listing the birds of a region by no means solve the problem. One must also study at least the major features of the plant life and the general environment, and ascertain what factors have been active in developing the fauna of today and in bringing about its present distribution.

To the student of zoogeography the book will be an important work of reference and should be in all scientific and general libraries. For detailed comment on the ornithology we must refer to our previous review in 'The Auk' 1920, p. 688.—W. S.

Abel Chapman's 'Savage Sudan.'—In this attractive volume the well known hunter-naturalist Abel Chapman has presented the results of his many expeditions into this fascinating section of Africa which, it will no doubt surprise many to know, comprises one fifth of the entire African continent. While in South Africa the exploits of the early hunters of big game can never now be repeated, and while East Africa is being opened up to white settlers, Mr. Chapman tells us that in the Sudan *primaeval* condition remain absolutely unchanged, and he prophesies that while capable of development it will never become a "white-man's land."

His ambition in preparing the present volume is "that ere the reader has completed his perusal, he will feel satisfied that he has been 'personally

¹ *Savage Sudan. Its Wild Tribes, Big-Game and Bird-Life.* By Abel Chapman., author of 'On Safari in British East Africa,' 'Wild Spain,' 'Wild Norway,' etc. With 248 illustrations, chiefly from Rough Sketches by the Author. Gurney and Jackson, London: 33 Paternoster Row. Edinburgh: Tweeddale Court. 1921. 8vo. pp. 1-ix + 1-452. Price 32 shillings net.

conducted' throughout savage Sudan and afforded an insight into both the physical features and the wild fauna of the country," and we think that his ambition has been realized.

While his descriptions, comments and anecdotes are sometimes thrown together in a somewhat irregular manner the vividness of all is so striking that the reader often feels as if he were an eye witness to the incidents and he is carried along from one stage of the journey to the next, into the heart of the country and out again, with always some new experience before him.

Naturally the author pays his greatest attention to the big game, but there are admirable descriptions of the deserts, rivers and forest country and constantly recurring observations on the birds, with good field sketches by the author, showing characteristic poses and actions. There are also frequent philosophic comments upon problems that present themselves in connection with the various animals and birds that are being discussed. Of these the author evidently feels most strongly on the subject of the extreme claims of what he terms the "color protectionists," and he scores them without mercy. Speaking of Thayer's 'Concealing Coloration in the Animal Kingdom' he says: "In America we know, they don't do things by halves. This book, however seemed to me to top the summit. I gently laid it aside—asphyxiated by the magnificent audacity of its assumptions. Subsequently, however, relief came when I read in another and authoritative American publication (*The Auk*) a review of Thayer's work that runs as follows: "By skilfull jugglings we are shown how anything and everything may be rendered inconspicuous etc." He presents an interesting array of facts drawn from his personal observations on the protective and non-protective character of animal coloration in different species and emphasizes the important part that sunlight plays in making an animal appear light or dark. "The Zebra" he goes on to say "was probably the worst prototype of their propaganda that the color protectionists could have selected." They are, he says, conspicuous and perfectly distinguishable from other animals at long distances.

"No distance lends enchantment to *my* view,

Nor paints *my* distant Zebra blue."

The ornithologist as well as the general zoologist will find a wealth of varied information in Chapman's book and all who enjoy accounts of travel will find it delightful reading.

We notice one description of a new species buried in the text at p. 110 which has apparently not been published elsewhere, at least there is no indication of the fact. This is *Aquila albipes* the White-footed Forest Eagle, which, contrary to the views of the authorities at the British Museum, the author regards as distinct from *A. rapax* of which they regard it as a dark phase. The type is preserved in the British Museum.—W. S.

McAtee's Spring Bird Lists.¹ Everyone in these days makes bird lists and the spirit of competition and the resulting desire to record the largest number of species are only human even though they are, as our author well says, "not for the best interests of ornithology."

Those who would counteract the tendency to inaccuracy, inevitably and unconsciously developed by competition, would do well to follow Mr. McAtee's admirable suggestions. He has insisted that the several persons making up the party on his "record walks" should *all* satisfactorily *see* each species before it is accepted for entry on the list, while species difficult to identify have been collected. Subspecies he wisely ignores as they are "scarcely a subject for field observation." This we consider an excellent practise for the observer who claims to be able to distinguish in the field, by sight alone, such races as the Northern and Southern Parula Warblers, the Northern and Southern Robin or the Northern and Southern Maryland Yellow-throat thereby places his entire list under suspicion.

Mr. McAtee's trip each year has been a continuous walk not a skipping from one point to another by rapid transit, and by selecting a definite route to be followed year after year the comparison of lists becomes more interesting than a comparison with lists made by others in a different section.

The actual number of species observed on these ten May walks varied from year to year from 73 to 101, while the largest lists were on May 11 and May 13, showing, as we should expect, that the height of migration of Warblers, etc., was reached about the middle of the month. The total number of species for the ten walks seems to be 146.

In commenting on the peak of the migration mention is made of the Connecticut Warbler, a species not found in any of the lists and excessively rare east of the Alleghanies in spring. We wonder if its mention was not a slip of the pen.—W. S.

Kopman, on the Wild Life Resources of Louisiana.²—This important contribution to the mammalogy and ornithology of Louisiana published as Bulletin 10 of the Department of Conservation is apparently the work of Mr. H. H. Kopman, although his name does not appear on either title page or cover. After preliminary remarks on the economic value of wild life there is a discussion of the natural divisions of the state and a map illustrating the extent of the marshes, prairies, and several wooded districts into which it is divided. Then follow detailed accounts of the habits, distribution, etc., of the more important mammals and game birds with nominal mention of probably all of the birds known to occur in the state.

¹ Ten Spring Bird Lists made near Washington, D. C. By W. L. McAtee. The Wilson Bulletin, December, 1921, pp. 183-192.

² State of Louisiana. Department of Conservation. M. L. Alexander, Commissioner. Bulletin No. 10. Wild Life Resources of Louisiana, Their Nature, Value, and Protection. Published by the Department of Conservation, New Orleans Court Building, December, 1921. 8vo. pp. 1-164.

The arrangement of the ornithological matter is not very satisfactory for one seeking data upon any given species, especially in the absence of an index, as can be judged from the character and sequence of the headings, i. e. Ducks and Geese, Coot, Rails and Gallinules, Snipe, Plovers and other shore birds, Wild Turkey, Quail, Prairie Chicken, Doves, Raptores, Smaller Land Birds, Non-Game Water Birds, and as an appendix, Birds of Accidental Occurrence.

The same prominence could, we think, have easily been given the game birds, in a more systematic and better balanced grouping. However, the report places a vast deal of information at the disposal of the general reader and will do much good in the campaign for conservation, while the map and accompanying discussion will be most welcome to the student of zoogeography. A large number of half-tones illustrate the report but as a rule they do not show to advantage, probably owing to the texture of the paper. Mr. Kopman is to be congratulated upon a valuable contribution to the literature of the conservation of wild life.—W. S.

Todd on the Genus *Pipromorpha*.¹ Mr. Todd's revision of this genus of flycatchers is the first of a proposed series of 'Studies in the Tyrannidae.' After an examination of 460 specimens including the series from most of the larger museums of America, Mr. Todd is able to recognize four species, *rufiventris*; *macconnelli* (three subspecies); *oleaginea* (five subspecies) and *assimilis* (two subspecies).

P. macconnelli amazona (p. 179) Buena Vista, Bolivia; and *P. oleaginea pacifica* (p. 187) Bucay, Ecuador, are described as new, while four of Mr. Chubb's recently described races of *P. oleaginea* fall into synonymy in Mr. Todd's opinion. The genus *Pipromorpha* he finds is very close to *Mionectes* from which Ridgway separated it in 1907, in fact there is but one character—the shape of the ninth primary which serves to separate it! The work seems to be very carefully done and the descriptions, synonymy and lists of specimens are full and in every way satisfactory.—W. S.

Recent Papers by Chrostowski. Several papers on neotropical birds have appeared during 1921, by the Polish ornithologist T. Chrostowski. In one of these ² seven rare or little known Brazilian birds are discussed, one of which *Nonnula hellmayri* (p. 39) from Parana is described as new. Another paper³ deals with the types of neotropical birds in the Museum of the Academy of Sciences of Petrograd, the collections of F. H. von Kittlitz and Emele Menetrice being considered. Incidentally, *Planesticus bianchii* (p. 28) from "Brazil" is described, as new. In connection with

¹ Studies in the Tyrannidae. I. A Revision of the Genus *Pipromorpha*. By W. E. Clyde Todd. Proc. Biol. Soc., Wash., 34 pp. 173-192. Dec. 21, 1921.

² Ann. Zool. Mus. Polonici Hist. Nat. 1, Fasc. 1. September 30, 1921. pp 31-40. [In English and French.]

³ Ibid. Sept. 30, 1921. pp. 9-30. [In French.]

these papers attention might be called to the author's report¹ on a collection made at Parana in 1910 and 1911 which apparently appeared in 1912.—W. S.

Oberholser on Bird Life in the Great Basin.²—One naturally associates Dr. Oberholser's name with the most technical treatises dealing with nomenclature and taxonomy, and the present paper will doubtless come as a pleasant surprise to many who are unacquainted with his versatility. He has here presented us with an admirable popular sketch of the physical characteristics and bird life of one of the most interesting of the desert areas of the west—the Great Basin.

The habits and appearance of many of the water and shore-birds of Tule and Pyramid Lakes are described in some detail as well as of a number of the more truly desert birds which are not dependent upon the presence of bodies of water. The student of the life history and behavior of our native birds will find Dr. Oberholser's paper one well worth consulting. While no scientific names appear, one cannot but notice some of the peculiarities of the English names, for which the author is probably not responsible. Instead of following the standard forms established by the American Ornithologists' Union and in very general use, we find the editor of the Smithsonian Report, insisting that "humming bird" and "mocking bird" consist of two words with not even a hyphen, though "meadowlark" and "nighthawk" pass as single words. In another report from the same institution however, we find "humming-bird" hyphenated!—W. S.

McAtee's Community Bird Refuges.³ In this attractively gotten up pamphlet the author calls attention briefly and concisely to the advantages of increasing the number of birds on or about our farm lands. While the average number of birds to the acre throughout the country is shown to be two, the number has been increased by the offer of suitable inducements to as many as 59 pairs. At an annual average value of 10 cents each to the farmer, as insect destroyers,—a ridiculously low estimate, the birds of the United States effect a saving of four hundred million dollars every year, and it is readily seen that the more we can attract to our grounds the better.

The usual methods of erecting nest boxes, winter feeding, planting of berry bearing bushes, etc., are mentioned, with references to other available publications on the subject. A novel feature however, is a plea for

¹ Compt. Rend. Soc. Scient. de Varsovie, 1912, V. Ann., fasc. 8. pp. 452-500. [In Polish with condensed reprint in French].

² Glimpses of Desert Bird Life in the Great Basin. By Harry C. Oberholser. Smithsonian Report for 1919, pp. 355-366. Washington, Government Printing Office, 1921.

³ Community Bird Refuges. By W. L. McAtee. Farmers' Bulletin 1239. U. S. Dept. Agr., December, 1921, Svo. pp. 1-14.

the improvement of roadsides and railroad right-of-ways. "There exists" says the author "in most parts of the United States either a superstition, a conviction, or a legal requirement that roadsides be shorn of their vegetation at least once a year." The result is a dusty, shadeless, uninviting road, which could be remedied by the proper planting and care of trees and hedges, which would be pleasing to the eye and would furnish shelter and nest sites for birds.

Mr. McAtee has prepared a timely and useful pamphlet. A new edition, is we understand, already called for which is encouraging although we fear it will require several of them to overcome the ridiculous notions about clearing the fence rows which are inherent in the minds of the majority of our farmers.

Apropos of popular nomenclature the Biological Survey seems to be establishing another code of names different alike from the A. O. U. 'Check-List' and the idiosyncracies of the Smithsonian Reports. We find "eastern bluebird" used consistently all through this paper though "robin," "hermit thrush," "mockingbird" and "meadowlark" appear without the geographic modifier. If the improvement is desirable in one case, why not in all? "Yellow-shafted flicker" is another vernacular not in the A. O. U. 'Check-List.' These are but minor matters but the constant tendency toward individuality in nomenclature and the ignoring of the once authoritative 'Check-List' are alarming and seem to serve no purpose but to effect ultimate chaos.—W. S.

Wetmore on Body Temperature of Birds.¹—Few recent ornithological papers contain as much "meat" as is crowded into the fifty odd pages of Dr. Wetmore's treatise on the body temperature of birds. His studies have covered a number of years and with painstaking perseverance he has personally collected no less than 1558 dependable temperature records from recently killed birds representing 327 species and 50 families while compiled data swell the list of species to 406. His records were taken with special self-registering clinical thermometers, carried constantly in the field, ready for instant use, and inserted through the throat or rectum into the body cavity immediately after the bird was shot, later readings being found to be useless.

Dr. Wetmore corroborates the statements that the temperature of a bird increases a few degrees as the day advances and that the temperature of the female is usually slightly higher than that of the male. In the Phalaropes however, he finds that the reverse is true, doubtless correlated with the well-known reversal in the duties of incubation and rearing of the young in these birds. The same reversal of temperatures, however, prevails in the Avocet, and Dr. Wetmore has evidence pointing to the probably assumption of most of the duties of incubation by the males

¹ A Study of the Body Temperature of Birds. Smithsonian Misc. Collns. Vol. 72, No. 22. By Alexander Wetmore. pp. 1-52. December 30, 1921.

in this species, while he has proven this to be the case in the Willet and suspects it in the majority of the shore birds. He finds that the body temperature of birds is apparently quite independent of external temperature, records of the same species in seasons of marked heat or marked cold showing no difference. Systematically, temperatures seem in a general way, to vary from low, in groups regarded as low in the scale, to high, in those which are most specialized, but there are many discrepancies due probably to insufficient data.

Most interesting of all Dr. Wetmore's discussions are those concerning "Method of Temperature Control in Birds" and "Significance of Temperature Control." We can only touch upon a few of the points considered. Birds, as is well-known, possess no "sweat glands," while the feather covering tends to conserve the heat of the body. Their high metabolism—the tremendous development of heat due to the muscular action in flight, demands in the absence of glands, some other method of relief, and this our author considers is found in the air sacs peculiar to birds, which act as the agency of temperature control, a fact first independently discovered by Dr. Wetmore but later elaborated by others.

The difference between "warm-blooded" and "cold-blooded" animals is explained to lie, not in the actual degree of temperature, but in the ability to maintain a more or less uniform body temperature independent of the external conditions. "Cold-blooded" animals, such as reptiles, vary their temperature in direct relation of that of their surroundings and very low temperatures induce torpidity, while "warm-blooded" forms, either by glands in the skin, or the feather coating and air sack system, keep their temperature nearly constant. The origin of the "warm-blooded" condition Dr. Wetmore attributes to the struggle against enforced hibernation.

It is to be hoped that Dr. Wetmore will be enabled to carry on his researches, in this field, as he proposes, until sufficient data are accumulated to demonstrate conclusively many points that are now merely suggested. The possibilities of further study are of the utmost importance and are likely to throw light on taxonomic as well as physiological problems.—W. S.

Bangs on Birds of the American Museum's Asiatic Expedition, of 1916-1917.—The birds collected by Messrs. Andrews and Heller in Burma, Yunnan and Fokien in 1916-1917, when making explorations on behalf of the American Museum of Natural History, have been entrusted to Mr. Outram Bangs for identification and an annotated list of them is presented in the present paper¹. The new forms described are *Pericrocotus yvettae* (p. 583), Malipa, Burma; *Turdus auritus conquisitus* (p. 591), Snow Mts., Yunnan; and *Megalurus palustris andrewsi* (p. 592), Meng-ting, Burma.

¹ Birds of the American Museum of Natural History's Asiatic Zoological Expedition of 1916-1917. By Outram Bangs. Bull. Amer. Mus. Nat. Hist., XLIV, Art XX, pp. 575-612. New York, December 30, 1921. 8vo.

A new name *Rhipidura flabellifera placabilis* (p. 583) is proposed for *R. f. kemp*i Matthews and Iredale of New Zealand, which is preoccupied.

The collection contains representatives of nearly 300 species but many of them represented by only one or two specimens, which as Mr. Bangs says renders subspecific determination not always certain.—W. S.

Miller and Griscom on Central American Birds.—This paper¹ includes descriptions of several new birds mostly obtained by the authors on an expedition to Nicaragua in 1917, and here published in advance of their final report. There are also comments on the status of certain other Central American forms. The new Nicaragua birds are *Ortalis cinereiceps saturatus* (p. 1), Matagalpa; *Cerciscus ruberrimus* (p. 2) Jinotega; *Gallinula chloropus centralis* (p. 3) Metapa; *Asturina plagiata micrus* (p. 4) Chinandega; and *Ictinia plumbea vagans* (p. 5) Peña Blanca.

Craz panamensis Ogilvie-Grant the authors find indistinguishable from *C. globicera*, every one of the alleged characters being matched in a series of the latter species.

Commenting on Mr. Bangs' review of the Wood Rails of Central America, they fail to find any intergradation between *Aramides albiventris* and *A. plumbeicollis* and regard them as quite distinct species. On their recent expedition, moreover, they found a new race of the latter at Tipitapa, Nicaragua, which is described as *A. p. pacificus* (p. 11). *Aramus vociferus* they divide into two races, the typical form being restricted to Florida and the other *A. v. holostictus* (Cab.) ranging over the Greater Antilles and Central America.

In discussing the status of *Gampsonyx swainsoni leonae* Chubb. the authors' ideas became somewhat involved and a new edition² of this note has been issued to be substituted for the original. As we now understand it they recognize *leonae* and *swainsoni* as separable but on different grounds from those given by Mr. Chubb while *meridensis* Swann is regarded as a synonym of the former.—W. S.

Grinnell and Storer on Yosemite Birds.³—The publishers of Hall's 'Handbook of Yosemite National Park' have done well to secure the service of Dr. Joseph Grinnell and his staff of the Museum of Vertebrate Zoology to prepare the chapters on natural history. Too often such work is intrusted to a compiler, with unfortunate results, but in this case the best authorities on the subject have been consulted.

Four chapters have been prepared by Dr. Grinnell and Mr. Storer

¹ Descriptions of Proposed New Birds from Central America, with Notes on other Little-known Forms. By Waldron DeWitt Miller and Ludlow Griscom. Amer. Mus. Novitates, No. 25. December 7, 1921, pp. 1-13.

² Errata (undated).

³ Life Zones of Yosemite National Park. By Joseph Grinnell, Director and Tracy Irwin Storer, Field Naturalist, Mus. Vert. Zool. Univ. of Calif., Hall's Handbook of Yosemite National Park, G. P. Putman's Sons, 1921, pp. 123-132.

dealing with the mammals, birds, reptiles and amphibians and the life zones of the Yosemite. The last explains very clearly the zonal distribution of life and lists the more conspicuous species of vertebrates found in each zone from the Lower Sonoran in the San Joaquin Valley, near Merced, to the Arctic Alpine of the highest Sierran peaks.

The chapter on birds¹ tells us that the "Yosemite section," about the size of the State of Rhode Island, contains 226 different kinds of birds, about 50 of which are briefly described and their characteristic habits mentioned. The selection is very well made and gives a satisfactory picture of Yosemite bird-life. Several half-tone illustrations and a bibliography complete the sketch.—W. S.

Cherrie and Reichenberger on New Birds from Southern South America.²—The forms here described are mainly from the Roosevelt collection made by Mr. Cherrie in 1913-1916. They are *Strix chacoensis* (p. 1), Ft. Wheeler, Paraguay; *Ortalis canicollis pantanalensis* (p. 2), Matto Grosso, Brazil; *O. c. grisea* (p. 2), Santiago del Estero, Argentina; *Nystactes tamatia interior* (p. 3); *Nonnula ruficapilla pallida* (p. 4); *Chloronerpes flavigula magnus* (p. 4), all from Matto Grosso, Brazil; and *Furnarius rufus paraguayae* (p. 5), Puerto Pinasco, Paraguay.

The descriptions are commendably full with discussions of related forms.—W. S.

Murphy and Harper on the Diving Petrels.³—In this very carefully prepared monograph the authors reach the conclusion that the Diving Petrels represent but one genus *Pelecanoides* divisible into four subgenera *Puffinuria*, *Porthmornis* (p. 503), *Pelagodytes* (p. 503)—these two here described as new, and *Pelecanoides* proper. The first three contain but a single species each with no subspecies, but the last contains two species *urinatrix* and *exsul*, the former divisible into five geographic races. The authors are to be congratulated upon their conservatism in the systematic treatment. The habits of these interesting antarctic birds are discussed as well as their probable evolution. Following the principles laid down by Dr. W. D. Matthew for the distribution of mammals, the authors think it likely that the original center of dispersal of these birds was the vicinity of Cape Horn, where we find today the most distinctive species, *P. magellani*. Those on the extremes of the range of the group have many points of resemblance, which would be interpreted by the authors to be due to the retention of primitive nonadaptive characters rather than to close re-

¹ Some Birds of Yosemite National Park. Ibid, pp. 133-152.

² Descriptions of Proposed New Birds from Brazil, Paraguay, and Argentina. By George K. Cherrie and (Mrs.) Elsie M. B. Reichenberger. Amer. Mus. Novitates, No. 27. December 28, 1921, pp. 1-6.

³ A Revision of the Diving Petrels. By Robert Cushman Murphy and Francis Harper. Bull. Amer. Nat. Hist., Vol. XLIV, Art. XVII. pp. 495-554. New York, December 23, 1921.

lationship. There are a number of half-tone illustrations of skins of adults and downy young, nests and eggs, but on the paper used the plates do not show to advantage, though they may be considered more permanent. —W. S.

The Ornithological Journals.

Bird-Lore. XXIV, No. 1. January-February, 1922.

Courtenay Brandreth's Bird Paintings.—By F. M. Chapman.—Besides paying a high tribute to the artist Dr. Chapman takes the opportunity to state some of the requirements of a bird artist, calling attention to the importance of a thorough knowledge of the live bird and concluding with the statement that "no one has ever reached or ever will reach the first rank of bird artists who is not possessed of that keen interest in birds which marks the born ornithologist." Half-tone reproductions of several of Mr. Brandreth's paintings are used as illustrations.

The twenty-second Christmas Census takes up the bulk of the number. The general occurrence of the Northern Shrike in the New England and Middle States is commented upon as well as the large number of species reported from East Goose Creek, Fla., by Ludlow Griscom and M. S. Crosby—109 species, a greater number than from any California locality. The desirability of seeking for numerical records in field list has however been discussed in another connection on page 282 (*antea*).

The educational leaflet by Mr. Pearson treats of the Maryland Yellowthroat, the plate being drawn by Allan Brooks.

The Condor. XXIV, No. 1. January-February, 1922.

The Reddish Egrets of Cameron County, Texas. By J. R. Pemberton. An excellent account with admirable photographs.

Magpies versus Livestock: An Unfortunate New Chapter in Avian Depredations. By S. Stillman Berry.—A valuable account of the attack by Magpies upon sheep and hogs. The author very wisely advises caution in declaring all Magpies to be "vermin" and ordering their extinction, which is far too often the method of procedure in these days. He suggests that the habit is quite possibly acquired by only a few birds and that the killing of those caught in the act may be all sufficient, and again he says that the habit which is now sporadic may die out again without becoming a character of the species.

Notes on the Dipper in Yellowstone National Park. By M. P. Skinner.

Some Birds of Roosevelt Lake, Arizona. By H. H. T. Jackson. Notes on thirteen species.

Among the general notes we find one by Dr. Grinnell stating that no less than 205 new species and subspecies of birds have been described from California of which 160 are now regarded as valid.

The Wilson Bulletin. XXXIII, No. 4. December, 1921.

The Nesting of the Duck Hawk in South-Central Wisconsin. By H. L. Stoddard.

Summer Birds in the vicinity of Lake Caddo, Harrison County, Texas. By Alvin R. Cahn.

Comparative Periods of Nestling Life of Some North American *Nidicolae*. By F. L. Burns (continued.)

Three Spring Bird Lists made near Washington, D. C. By W. L. McAtee.

The Oologist. XXXVIII, No. II. November 1, 1921.

The Brown Creeper [nesting in Pennsylvania]. By R. B. Simpson.

The Oologist. XXXIX, No. 1. January, 1922.

Arkansas Birds. By J. D. Black.—A list of species observed at Winslow, Ark.

Bulletin of the Essex County Ornithological Club. III, No. 1. December, 1921.

Wild Turkey in New England. By Glover M. Allen.—A valuable historical account with notes on the extermination of the turkey and a list of New England specimens extant.

The Status of Certain Ducks at Wenham Lake. By John C. Phillips.

The Terns of Our Coast. By Charles W. Townsend.

How Much do Loons Use their Wings under Water? By E. H. Forbush.

A call for more observation on the subject.

Some Buzzard's Bay Birds. By Winthrop Packard.

Also numerous local notes including a record of a specimen of Franklin's Gull (*Larus franklini*) taken at Salem, Mass., October 28, 1885, and now in the Peabody Museum.

The Ibis. (II Series) IV, No. 1. January, 1922.

Notes on Some Birds from the Near East and from Tropical East Africa. By Col. R. Meinertzhagen.—The following are described as new: *Cisticola cisticola annae* (p. 12) Famagusta, and *C. c. berberae* (p. 12) Berbera.

Notes on the Birds of Tsushima and Iki Islands, Japan. By N. Kuroda.—New forms are: *Yungipicus kizuki kotataki* (p. 86); *Monticola solitaria latouchi* (p. 92); *Troglodytes troglodytes utanoi* (p. 96); *Sittiparus varius ijimae* (p. 98); *Periparus ater terakae* (p. 100); *Garrulus glandarius namiyei* (p. 102); all from Tsushima, *Yungipicus kizuki amamii* (p. 88) LiuKiu Islands and *Y. k. nippon* (p. 88) Hondo.

A Short Systematic Review of the African Francolins. By C. W. Mackworth-Praed.—This is a very careful review of these difficult birds of which the author finds no less than 32 distinct species with 65 additional subspecies probably entitled to recognition. In this connection he shows commendable conservatism in the matter of proposing names for many of the subspecies until adequate series are available. He does however distinguish them by number and gives quite as full diagnoses as are provided by many present day describers of new forms. The only danger in the author's excellent method is that some nomenclatural pirate may take advantage of the materials thus provided and furnish the names that he has wisely withheld!

A Reminiscence of the Last Great Flight of the Passenger Pigeon.

in Canada. By Percy R. Lowe.—Presenting the recollections of Dr. A. B. Welford, of Woodstock, Ontario, of the phenomenal flights of 1869 or 1870.

Dr. Lowe adds some comments on the cause of the extermination of the Pigeon. We may consider it, he says, as a race whose germ potency had "outrun the constable" and instead of running to fantastic size as did so many of the doomed reptiles of the past ages "it rioted in a spend-thrift revelry of numbers." Or we may surmise that its vital mechanism had burnt itself out or that there was a sudden alteration in sex-ratio. Dr. Lowe however does not believe in a microbe infection or human agency as the cause of the bird's extinction. Others will, he says, dissent from his opinion, and we must, we fear, count ourselves among the dissenters since we regard the record of the destruction of the pigeons by man as quite sufficient to account for the disappearance of such a gregarious species, just as it was in the case of the buffalo.

A Note on Some Oriental Zosteropidae. By E. C. Stuart Baker.—*Z. palpebrosa elvsi* (p. 144) Gunjong and *Z. p. peguensis* (p. 144) Moulmein, and *Z. p. cacharensis* (p. 144) Assam, are described as new.

Some Remarks on the Names of Certain Birds. By C. B. Ticehurst. *Phylloscopus humei* Math. and Iredale should be *P. h. inornatus* (Blyth) which is earlier. *Motacilla flava campestris* Pallas becomes *M. f. flavifrons* Severtzow, being antedated by *M. campestris* Linn. *Phylloscopus indica* Auct. becomes *P. griseolus* Blyth (nec *Sylvia indica* Vieill.) *Alauda arvensis cinerascens* becomes *A. a. dulcivox* Brooks which is earlier.

Notes on Some Indian Wheatears. By C. B. Ticehurst.

The Birds of Spitsbergen and Bear Island. By F. R. C. Jourdain. —Report of the Oxford Expedition No. 1.

Species and Subspecies. By Percy R. Lowe.—A further careful explanation of the author's views on the existence of two kinds of subspecies —mutational and environmental.

Bulletin of the British Ornithological Club. CCLXIII. November 29, 1921.

Mr. W. L. Sclater presents notes on several African Anatidae and proposes *Asio tingitanus andrewsmithi* (p. 24) as a new name for *Otus capensis* Smith. and *Yungipicus obsoletus batesi* (p. 24) for *Dendropicos o. camerunensis*, both being preoccupied. *Tyto alba erlangeri* (p. 24) Arabia is described as new.

Col. Meinertzhagen contends that the characters upon which Mr. Iredale recently separated the Spitsbergen Red Phalarope, (*P. f. jourdaini*) are merely seasonal.

Mr. D. A. Bannerman describes *Tchitrea fagani* (p. 28) from Nigeria. Mr. E. C. Stuart Baker three new forms from India and Mr. J. D. La-Touche nine from Yunnan.

The Tenth Oölogical Dinner was held on September 14, 1921, with an interesting exhibit of eggs of Alcidae and Game Birds.

British Birds. XV, No. 7. December 1, 1921.

On the British-taken Examples of the Levantine Shearwater. By H. F. Witherby.—An examination of a number of specimens seems to indicate that probably all of those taken in British waters are *P. p. mauretanicus* and not *P. p. yelkouan*.

British Birds. XV, No. 8. January 1, 1922.

Nesting of the Whooper Swan in Scotland. By Audrey Gordon.

On the Breeding Habits of the Turnstone in Spitsbergen. By A. H. Paget Wilkes.—A full account with excellent illustrations from photographs.

Another Cuckoo Record. By J. Scholey.—An exceedingly interesting contribution to the life history of this remarkable bird. The individual female under observation laid its eggs exclusively in the nests of the Reed Warbler—six in 1919, sixteen in 1920 and nineteen in 1921. In nearly every instance she removed an egg of the Warbler when depositing her own. She was attended by two males and when one of them accompanied her to a nest the author considered it to be for protection as the male drew the attention of the owners of the nest away from the female.

British Birds. XV, No. 9. February, 1922.

Observations of the Breeding Habits of the Merlin. II. Incubation. By W. Rowan.

Revue Francaise d'Ornithologie. No. 152. December 7, 1921. [In French].

Dr. Millet Horsan describes as new *Phalacrocorax africanus menegauxi* (p. 177) and *Halcyon torquatus pontyi* (p. 178) both from Togo, and continues his popular account of the birds of Africa.

Revue Francaise d'Ornithologie. No. 153. January 7, 1922.

[In French.]

On the Spring Migration at Charente. By J. Delamin.

Le Gerfaut. XI, No. 3-4. 1921. [In French.]

Fauna of Belgium. The Eagles. By G. van Havre.

Numerous local notes.

L'Oiseau. 11. November, 1921. [In French.]

The rearing of Bulbuls, Ganga Cockatoos and Hemipodes is discussed by several writers.

Ardea. X, No. 2-3. [In Dutch.]

The Migration of Birds. By E. D. VanOort.—An historical resume.

Results of Bird-banding by the Leiden Museum. By E. S. VanOort.

Ornithological Notes from Spitsbergen and Scandinavia. 1921. By G.

J. VanOordt.—An extensive paper in English with illustrations of various birds and nests from photographs. Most interesting are some views of the Red-throated Loon on its nest. The author was in Spitsbergen simultaneously with the Oxford University Expedition and met them in the field.

Further Additions to our Knowledge of the Avifauna of Eastern Sumatra. By L. F. DeBeaufort. [In English.]

This excellent number contains also an account of the meetings of the Netherlands Ornithological Society and many local notes among which is a record of a hybrid duck.—*Nettion crecca* × *Dafila acuta*.

Yearbook of the Netherlands Ornithological Club. II, No. 3-4. [In Dutch.]

Nesting of *Motacilla flava rayi* in the Netherlands.

Ornithology of the Netherlands. Observations October 1920-September 1921. By Snouckaert van Schouburg.

The South Australian Ornithologist. VI, No. 4. October 1, 1921.

Notes on Birds met with During a Visit to South-western Queensland. No. III. By A. Chenery.

Journal für Ornithologie. 69, Heft 1. January, 1921. [In German.]

Report on the 1919 Observations at Rossiten. By J. Thienemann.

New Birds from Cameroon. By A. Reichenow.—Thirteen new species and three subspecies.

Journal für Ornithologie. 69, Heft 3. July, 1921. [In German.]

Birds of Ukerewe Island, Victoria Nyanza. By H. Grote. (See review January, Auk.)

The Birds of Prey of Egypt. By A Koenig.

In the proceedings of the German Ornithological Society Reichenow describes *Crateropus plebeius elberti* (p. 461) from East Cameroon.

Journal für Ornithologie. 69, Heft 4. October, 1921. [In German.]

The Latest Results of Bird Migration Investigation in North America. A Critical Review. By W. R. Eckardt.—Considers mainly the work of the late Prof. Cooke.

On the Color Sense of Birds. By H. Krohn.

The Numerical Relationship of the Species in Bird Hybrids. By H. Poll.—A long list of hybrids the characters of which are indicated by the author's method.

Menzbier and Schnetrukow, describe *Podoces panderi ilensis* (p. 528) from Semerjetschje.

Ornithologische Monatsberichte 30, No. 1. January-February, 1922. [In German.]

With this issue Dr. E. Stresseman becomes the editor, taking the place of Dr. Reichenow, the founder of the journal and editor for nearly thirty years.

E. Stresseman describes four new birds from New Guinea and New Pomern.

Ornithologische Beobachter. XIX, No. 3. December, 1921. [In German.]

Ornithological Notes from the Region of the Bosphorus. By A. Mathey-Dupraz (continued in the next issue).

Ornithologische Beobachter. XIX, No. 4. January, 1922. [In German.]

The Hazel Hen. By F. Kaiser.—Illustrations of nest and eggs.

Ornithological Articles in Other Publications.¹

Ewart, J. Cossar. The Nestling Feathers of the Mallard, with observations on the Composition, Origin, and History of Feathers. (Proc. Zool. Soc. London. September 1921. pp. 609-642.)—An exceedingly interesting paper and probably the most important contribution to the subject that has appeared. The author's conclusions are that feathers did not arise from scales for the purpose of flight, but that the primary covering of birds consisted of various kinds of simple filaments which later developed into protoptiles or preplumula the former of which in some cases soon acquired the chief characteristics of true feathers. The progress of development was then arrested in order to provide birds with a fur-like coat to protect them from the cold of the Ice Age, which having passed the mesoptiles were superseded by true feathers which became specialized along the posterior margin of the hand and fore arm and the sides of the tail, making flight possible. We wonder if the author is familiar with the work of the late William Palmer some of whose notes on "down feathers" are published in the U. S. Fur Seal Report of 1899, Vol. III. These notes are unfortunately often overlooked on account of being buried in a volume where they would hardly be looked for.

Van Sommern, V. G. L. On a Collection of Birds from Turkanaland (Jour. East African and Uganda Natural History Society. No. 1, 16, February 1921, pp. 3-38).—186 species listed and briefly discussed, the new forms having already been described in the 'Bull. Brit. Ornithological Club.' There is an introduction describing the country and the itinerary of the expedition which made the collection.

Kloss, C. Boden. A Further Note on the Red Jungle Fowl. (Records of the Indian Museum, XIX, Pt. IV, November 1920.)—In this contribution to the controversy regarding the proper name for the Jungle Fowl the writer finds evidence of the occurrence of the bird in a wild state in Pulo Condore, to which locality Linnaeus refers, and which must become the type locality, rather than Bengal as fixed by Bangs and Penard. We think Mr. Kloss in error, however, in refusing to accept the Linnaean name, *Phasianus gallus*, because in the 'Fauna Suecica' it had been used for the domestic bird. Neither do we think that the fact that the name *bankiva* is of Javanese origin fixes the type locality of the race so named as Java, when Bangs and Penard have definitely selected Sumatra.

Fletcher, J. J. The Society's Heritage from the Macleays. (Proc. Linnaean Society of New South Wales, XLV, Pt. 4, 1921, pp. 567-635).—A valuable historical account of the early development of science in Australia.

Lovenskiold, Herman L. A Contribution to the Avifauna of Jaedern. (Aarshefte, Stavanger Museum, 1918-19, pp. 3-21.) [In Scandinavian]—An annotated list of 71 species, 66 of which, as one might expect in a Scandinavian locality, bear Linnaean names.. There are half-tone figures of nests and eggs of various species.

Following this paper are several colored plates of hybrids between *Lyrurus tetrax* and *Lagopus*.

Ogilvie-Grant, W. R. Guide to the Gallery of Birds, British Museum (Natural History).—A descriptive account of the principal types of birds of the world in systematic order with an appendix on the structure of birds and an atlas of 24 plates of mounted specimens and groups.

Allen, Amelia S. The Birds of the Berkeley Campus. (Univ. of California Chronicle, January 1922, pp. 89-106.)—A very pleasing popular account of the common birds of Berkeley, Calif., their songs and identification marks. The list includes 122 species; 36 residents, 32 winter visitants, 20 summer visitants and 34 transients. Incidentally the statement that "a hawk is already a *rara avis* east of Ohio" will hardly be accepted by eastern ornithologists. There are many times and places where hawks are still abundant in the east, as for instance at Cape May, N. J., where in September the annual slaughter of several thousand Sharp-shins does not seem to affect the swarms that still come down the coast.

McClelland, Dr. and Mrs. W. C. Notes on the Birds of the Vicinity of Washington, Pa. (American Midland Naturalist, VII, 1922, pp. 35-38). About 100 species seen in ten years. Popular notes on the common species. "Brown-breasted Nuthatch" is evidently a misprint and "Chickadee" should be Carolina Chickadee.

Pohlman, A. G. Have Birds an Acute Sense of Sound Location? (Science, May 6, 1921.)—Suggests that the confluence of the middle ear cavities in birds may result in greater ability to locate sound. Note by Joseph Mailliard on the same subject, *Ibid.*, February 24, 1922.

Rockwell, R. B. and Blickensderfer, C. Home Life of the Saw Whet Owl. (Natural History, XXI, No. 6, Nov.-Dec., 1921, pp. 627-638.) An excellent intimate study of this little owl at Golden, Colo., with 18 admirable illustrations from photographs.

Meinertzhagen, R. A Preliminary Study of the Relation between Geographical Distribution and Migration, with Special Reference to the Palaearctic Region. (Smithson. Report for 1919, pp. 339-348.) Reprinted from 'The Ibis,' 1919.

Collinge, W. E. The Necessity of State Action for the Protection of Wild Birds. (*Ibid.* pp. 449-353.) Reprinted from 'The Agricultural Magazine,' May, 1919.

Lima, Joao Leonardo. Birds Collected in the States of S. Paulo, Matto Grosso and Bahia (Brazil) with some New Forms. (Rev. Mus. Paulista, XII, 1920, pp. 93-106.) [In Portuguese.]—The new forms are: *Picumnus* [sic] *lepidotus corumbanus* (p. 94), Corumba; *Xiphocolaptes albicollis belmontensis* (p. 102), Belmonte, Bahia; *X. a. villadenovae* (p. 104), Villa Nova, Bahia; *Campylorhamphus trochilirostris intermedius* (p. 103), Ilheus, Bahia; *Sporoptula* [sic] *sertanicola* (p. 105), Serra do Cubatao, S. Paulo. On the colored plate of the new forms which accompanies the paper the misspellings noted above are corrected and the second race of *Xiphocolaptes* appears as *villanovae*.

Rabeiro, Alípio de Miranda. Revision of the Brazilian Parrots. (Ibid, pp. 1-82.) [In Portuguese.]—The following new genera are proposed: *Hemipsittacus* (p. 7) for *H. severa*; *Propyrrhura* (p. 7) for *P. maracana*; *Gymnopsittacus* (p. 9) for *G. wedelli*; *Proconurus* (p. 21) for *P. nobilis* (p. 21); *Chapmania* (p. 65) for *C. barrabandi*; and *Salvatoria* (p. 68) for *S. xanthops*.

Forbush, E. H. Bird Guardians of the Trees. (American Forestry, XXVIII, pp. 159-164.)—Many beautiful photographs by Cordelia J. Stanwood.

Lecaillon, M. A. On the Characters of a Hybrid between *Cairina moschata* and *Chenalopex aegyptiacus*. (Compt. Rend. Acad. Sci. Paris, 174, No. 1, pp. 68-69.) [In French.]

Le Souef, A. S. Notes on the Breeding of the Scrub Turkey. (Australian Zoologist, 1, pt. 8, p. 251.)

Froggatt, Walter W. The Wedge-tailed Eagle (Ibid, pp. 251-254).

Boettger, C. R. My Expedition to the Spanish Colony, Rio de Oro, in West Africa. (Bericht Senkenb. Naturf. Gesell., 51, heft 1, pp. 18-31, 1921, and heft 2, pp. 72-84.) [In German.]—Some general account of the birds.

Schnurre, Otto. The German Bird Fauna in its Relation to Man's Colonization (Ibid. heft 1, pp. 13-17). [In German.]

Evans, William. Edinburgh Rookeries in 1921. (Scottish Naturalist, No. 121-122, Jan.-Feb. 1922, pp. 9-12).—Fourteen rookeries, 1545 nests.

Wild, Oliver H. A Scottish Method of Bird-Catching. (Ibid., pp. 13-15).—Also other comment on the widespread trapping of native birds for caging.

Shipley, Sir Arthur E. The Danger to Fish and Bird Life from Oil-Driven Ships. (The Landmark, III, No. 5, May 1921.)—A strong plea for discharging oil far from shore. The constantly increasing damage to birds along our coasts is becoming a serious matter. On the Scottish coast over 300 dead or disabled Kittiwakes and a similar number of Razor-bills were counted in a single day, and the same thing occurs on the American coast.

Racey, K. Notes on the Northwest Coast Heron in Stanley Park, Vancouver, B. C. (Canadian Naturalist, September 1921.)

Nice, Margaret M. Some Experiences with Mourning Doves in Captivity. (Univ. of Oklahoma Bulletin, No. 220, July 15, 1921.)

Riddle, Oscar. A Simple Method of Obtaining Premature Eggs from Birds (Science, Dec. 30, 1921).—The importance of obtaining immature eggs for certain biological investigations has seemed to justify the occasional killing of the female bird, but it is now found that therapeutic doses of the posterior lobe of the pituitary body cause the premature discharge of the egg before the shell is formed. It is usually the eggs of the Common Fowl or Pigeon that are used, but should this practice be extended to the eggs of wild birds, we can imagine the horrified protest of oölogists who, despite their name, are not much concerned with the egg proper as compared with the shell!

Additional Publications Received (up to March 20).

Chapman, F. M. The Distribution of the Swallows of the Genus *Pygochelidon* (Amer. Mus. Novitates No. 30, Feb. 28, 1922).

Chapman, F. M. Descriptions of Apparently New Birds from Colombia, Ecuador and Argentina (Amer. Mus. Novitates, No. 31, March 2, 1922).

Hewitt, C. Gordon. The Conservation of the Wild Life of Canada. Chas. Scribner's Sons, 1921.

Kutchin, Victor. What Birds have Done with Me. Richard G. Badger. The Gorham Press.

Lucanus, Frederick von. Die Rätfel des Vogelzuges. H. Beyer & Son. Langensalza.

Mathews, G. M. The Birds of Australia. Vol. IX, Pts. 5 and 6.

Witherby, H. F. A Practical Handbook of British Birds, Part XIII. Feb. 16, 1922.

Beebe, William. A Monograph of the Pheasants. Vol. III.

Avicultural Magazine. XIII, Nos. 1 and 2, January and February, 1922.

Bird Notes and News. IX, No. 8.

British Birds. XV, No. 10. March 1, 1922.

Bulletin British Ornithologists' Club. CCLXV, CCLXVI.

California Fish and Game. VII, No. 4, VIII, No. 1.

Emu, The. XXI, Pt. 3. January, 1922.

Fins, Feathers and Fur. No. 28, December, 1921.

Journal für Ornithologie. 70, Heft 1. January, 1922.

L'Oiseau. II, No. 12, III, No. 1, December 1921, and January 1922.

Oologist, The. XXXIX, No. 2. February, 1922.

Ornithologische Beobachter, XIX, No. 5.

Provencher Society of Nat. Hist. Annual (?)

Philippine Journal of Science. 19, Nos. 1-4, July-October, 1921.

Proceedings Acad. Nat. Sciences Phila. LXXIII, Pt. 2.

Revue Francaise d'Ornithologie. 14, No. 154.

South Australian Ornithologist. VI, Pt. 5.

CORRESPONDENCE.

Bird Counts.

Editor of 'THE AUK.'

The Biological Survey began in 1914 to collect data on the numerical distribution of bird life in the United States. By such information, which is gained through counts made by volunteer collaborators, of the birds breeding on selected areas, it is possible to gain some knowledge of the yearly fluctuations in bird life and of the effect the present State and Federal laws may have on the increase of game and insectivorous birds. During the earlier years we received a very gratifying response to our request for assistance, but during the war many persons were unable to continue the work and interest in it has seemed to wane. It is desirable that these counts should be repeated on a large scale through a period of years in order that adequate data may be accumulated to make possible definite conclusions. Any one thoroughly familiar with the breeding birds of his vicinity can do this work, and will find it growing in interest from year to year. We are therefore again appealing to the readers of 'The Auk' in the hope that all who are able to do so will make one or more bird counts this summer.

The general plan of this work is to select a tract of land containing from 40 to 80 acres and representing as nearly as possible the average conditions for the vicinity. Some day during the height of the breeding season, this land should be carefully gone over in the early morning and the male birds counted, which at that season are usually in full song and may be considered each to represent a breeding pair. The result of this count should be checked subsequently to be sure that all birds counted nest within the selected area, and that none have been missed. The count should not be made until the spring migration is over and the birds are settled on their nesting grounds. In the latitude of Washington, D. C., the best time for the first count is about the first of June, in New England and the northern states probably about June 10; and south of Washington, during the latter part of May.

Anyone who is willing to do this work is requested to send his name and address to the Biological Survey, Washington, D. C. Full directions for making a count and report blanks will be sent in time for plans to be made before the actual time for the field work. Since the Bureau has no funds with which to pay for this work, it must depend on the services of voluntary observers.

An added impetus should be given to this work at the present time by the report that the British ornithologists are contemplating a census of the birds of the British Isles, planned along the same lines as our own.

Very truly yours,

E. W. NELSON,

Chief, Biological Survey.

Washington D. C.

February 1, 1922.

Inner Primaries of Woodpeckers.

Editor of 'THE AUK:'

In my recent article on the "Inner Primaries of Nestling Woodpeckers," I stated (Auk, 1921, p. 532) that so far as I was informed no writer had yet remarked upon their peculiarities. As so often happens, I was not aware of a note published in the *Journal für Ornithologie*, 1916, pp. 155-156, by Dr. A. Heinroth, wherein the conditions in the young of *Jynx torquilla*, *Dryobates minor*, and *Dryocopus martius* are fully and accurately described. My attention has just been called to this previous publication by Dr. E. Stresemann.

As might be gathered from the opening sentence of my article, I still claim priority for my investigations, since they were begun in the Belgian Congo in 1911, and taken up again in the United States in 1915. But had I read Dr. Heinroth's excellent account of his discovery, I should not have failed to give him full credit.

It is of special interest to note that the young Wryneck resembles the Woodpeckers. With regard to the Indicatoridae, I have recently ascertained that in at least two species (*Indicator conirostris* and *Melicopeutes robustus*) there is no reduction of the inner primaries in nestlings.

Very sincerely yours,

JAMES P. CHAPIN.

Amer. Mus. Nat. Hist.

New York, March 21, 1922.

NOTES AND NEWS.

THOMAS HOOPES JACKSON, an Associate of the Union since 1888, died at his home in West Chester, Pa., on February 27, 1922. He was born just north of the borough of West Chester on October 29, 1848, the son of Halliday and Caroline Hoopes Jackson, and one of a family of six children. He spent his entire life in West Chester, being connected with the West Chester Wheel Works, which he entered as a young man. He married in 1887, Miss Ella A. Scarlett, and had one son T. Harold Jackson, of Trenton, N. J. He was a member of the Society of Friends and took an active interest in the North High Street Meeting in West Chester.

From early youth Mr. Jackson was interested in nature and especially in birds, an interest doubtless derived from the practice of the Friends of cultivating the natural sciences, and also from the works and traditions of the many early ornithologists who lived in or near West Chester—Dr. Michener, Vincent Barnard, Josiah Hoopes, etc. Mr. Jackson's specialty was the collecting of eggs and he was known by correspondence to oölogists in every part of the country. His collection was an exceptionally fine one, as he endeavored to make it representative and instructive without

unnecessary duplication. Mere wealth of numbers meant nothing to him. He was however by no means only a collector of eggs but a local ornithologist of the highest attainments, and a bird photographer of ability. No one knew the birds of the vicinity of West Chester better than he, and he was always ready to place his knowledge at the disposal of any one who might be in a position to use it. His modesty and generosity indeed kept him from attaining the reputation to which his knowledge of birds entitled him.

His first paper was an account of the nesting of the Worm-eating Warbler published in the 'American Naturalist' for December 1869, the first accurate account of the nidification of this species. Dr. Brewer republished the note in the 'History of North American Birds' with additional information, obtained, he says, from "the same observing ornithologist."

Later papers were published in 'The Ornithologist and Oölogist,' 'The Oölogist,' 'Cassinia,' 'The Auk,' 'Bird-Lore,' etc. Unfortunately these were not as numerous as they might have been had he not always hesitated to publish for fear what he had to say might not be worth while.

Mr. Jackson was deeply interested in bird protection, not only in better legislation in his own State, but also in establishing reservations on Wallop's Island, Va., and at Orange Lake, Fla.

He was one of the original Corresponding Members of the Delaware Valley Ornithological Club, and often attended the meetings at the Academy of Natural Sciences at Philadelphia, while he was at the time of his death the president of the West Chester Bird Club, an organization in which he took the deepest interest.

Those who knew him best appreciated his delightful companionship, his strong friendship and his deep love of all nature.—W. S.

THE PLATE in the October 'Auk' representing a flight of the Passenger Pigeons from a painting, from memory, by Mr. Frank Bond, which was exhibited at the Washington meeting of the A. O. U. in 1920, has caused much comment.

A number of members of the Union state that as they remember the flights they were more in the form of long streams and not on a broad front as Mr. Bond remembers them in Iowa. As the matter is of considerable importance we present an extract from a letter from Mr. Wm. B. Mershon with which the comments of our other correspondents agree. He says: "How Pigeons may have flown out in Iowa, where there were no trees, I do not know, but they had no such flight as this picture depicts here in Michigan. They strung out and did not fly in company front. In their migrating flight where large quantities of them were passing, they would frequently fly in two or three layers taking different air strata, so that sometimes there would be as many as three deep, one above the other, separated by thirty or forty feet of air space. There was pretty nearly a steady stream, one flock overlapping the other. Each flock bunched

in a sort of head and then gradually got thinner and strung out into a few birds where it would be overlapped from either above or below or along side by another oncoming bunched-headed flock. When flying to their feeding grounds the flocks were smaller than when they were on migration."

A TOTAL of 66,793 canaries were imported into the United States during the past fiscal year under permits issued by the Biological Survey, United States Department of Agriculture. The number of permits issued during the year authorizing the importation of foreign birds and animals increased more than 20 per cent. or from 453 to 560.

Altogether there were entered into the United States under permit a total of 182,052 birds during the year, the figures including 22,209 quail. In addition there were entered at San Francisco, chiefly as passengers' baggage without requirement of a permit, 875 parrots, 1,740 canaries, and 1,989 miscellaneous birds.

Rare birds imported included two Blue Birds of Paradise, four Count Raggi Birds of Paradise, twenty-one Satin-bower Birds, two New Guinea Mynahs and rare Toucans, Parrots and other species from South America.

AUTHORITY to collect migratory birds for scientific purposes was issued to 886 persons by the Bureau of Biological Survey of the United States Department of Agriculture during the past fiscal year. In addition, 160 persons were authorized to possess migratory birds for such purposes, and 48 were authorized to capture migratory water fowl to assist them in breeding wild fowl for domestication. The possession of migratory water fowl for propagation purposes was authorized also by the bureau in 2,139 instances.

Only a small percentage of the persons to whom permits to propagate wild fowl were issued are engaged in breeding the birds for food purposes, many of the birds being held merely for ornamentation or for use as decoys. Permits were issued by the bureau to 150 responsible persons authorizing them to trap, band, and release migratory birds in cooperation with the Government's efforts to obtain scientific data concerning distribution, breeding habits and times and kinds of migratory flight of the birds.

IN MAKING the announcement that the National Association of Audubon Societies had just received a cash contribution of \$200,000.00, T. Gilbert Pearson, President of the Association, states that this is the largest of numerous donations, which through the years have been received from the same source.

This friend began by making modest gifts to the work, and his interest has increased as time has gone by.

It is an interesting and encouraging fact that the best supporters of the National Association of Audubon Societies are those who have had opportunity longest to watch its activities. The present gift was made upon condition that the donor's name should remain anonymous. This

sum will be added to the permanent Endowment Fund now totalling \$675,000, and will enable the Association to enlarge its activities along the lines specified by the giver, which are as follows:—

1. For the education of the general public in the knowledge and value of useful, beautiful and interesting forms of wild life, especially birds.
2. For the actual protection and perpetuation of such forms of wild life on suitable breeding and other reservations.
3. For protecting and maintaining adequate protection for such forms of wild life in all parts of the Western Hemisphere.
4. Or for any one of these purposes.

The Society was already making arrangements to enlarge its bird and game reservation activities, especially in the southern states and to increase its educational work among children.

WE LEARN from 'Science' that the objects of the recently organized New England Bird Banding Association will be the organization of a regional association of bird banders, from an area possessing one or more migration highways, along which trapping stations could be established, and by intensive attack, to furnish fairly speedy answers to certain specific migration problems. This will demonstrate the scientific value of bird banding and furnish a stimulus to continue the work which it is expected will ultimately solve many ornithological riddles, aid in the solution of others and create new problems not now anticipated.

By having the members meet together as often as possible to discuss results, methods and future plans and to gather inspiration from their fellows after the manner of scientific societies generally, the combined knowledge of the Association will be used to advance the work.

An appeal will be made for the support of Audubon Societies all over the country on the ground that bird banding is a bird-protection movement, since to an important extent, it will be possible in the future to substitute an examination of a live bird for the study of a dead one.

The permanence of the movement will be assured so far as possible by means of institutional trapping stations operated by or in connection with Audubon Societies, Natural History Societies, Bird Clubs, Departments of Ornithology or Zoölogy at colleges and universities, Bird Sanctuaries, State and National Parks, etc., in addition to stations operated by individuals.

A convenient local depository of all bird-banding records made by members will be established in appropriate quarters where they may be studied by members of the Association and others, an exact copy being sent to the Biological Survey.

COMPLETE SETS of 'THE AUK.' Since attention has been called to the number of complete sets of 'The Auk' much interest has been aroused in building up sets and in securing volumes needed to fill gaps in imperfect sets in public and private libraries. During the past year several sets have

been on the market, some have changed hands, and in a few cases members have been able to obtain the volumes necessary to fill out their sets. Since the appearance of the last list ('Auk,' April 1921, p. 319), fifteen additional sets have been reported. Four of these are in public libraries, the others in private hands; nine are in the United States and six in foreign countries. These additions bring the total numbers of complete sets now known up to 190 of which only 77 are in public libraries. Recently the owners of 5 sets—J. A. Allen (2), John Lewis Childs, Chas. B. Cory, and W. H. Fox—have died and their sets may or may not be continued. One of the Allen sets is now in the possession of H. L. Ferguson, Greenwich, Conn., and the Childs set has been acquired by Charles J. Werner, New York City. Following are the additional sets reported during the past year:—

California

Scripps Biological Station, La Jolla Tracy I. Storer, Berkeley
Donald R. Dickey, Pasadena (one number missing)

Maine

H. H. Johnson, Pittsfield

New York

Charles J. Werner, New York City R. S. Williams, N. Y. Botanical
Garden

Ohio

S. Prentiss Baldwin, Cleveland

Illinois

Robert Ridgway, Olney.

Oklahoma

J. E. Hallinen, Cooperton (two numbers missing)

Canada

John S. Dexter, Saskatoon, Sask. J. L. Keays, London, Ont.

France

Jean Delacour, Châtean de Clére, Seine Inferieure

Germany

K. Zool. Museum, Berlin Museum Zool. Statte Sammlung,
Munich

Holland

Royal Museum Natural History, Leiden

T. S. PALMER.

A RECENT decision in the United States District Court for the northern District of Georgia definitely established the fact that Doves are migratory birds according to the Treaty between the United States and Great Britain and that their killing is therefore forbidden.

AT THE Annual General Meeting of the British Ornithologists' Union held March 8, 1922, Dr. W. H. Osgood and Mr. W. DeWitt Miller were elected Foreign Members and Major Allan Brooks a Colonial Member.

The Godman-Salvin Medal was awarded to Dr. Wm. Eagle Clarke in recognition of his work on bird migration.

THE Annual Congress of the Royal Australasian Ornithologists' Union was held in Sydney, Australia, October 6-20, 1921. A scheme for several classes of members somewhat like that in force in the A. O. U. was suggested. The present officers were reelected.

THE THIRD volume of Beebe's 'Monograph of the Pheasants' reached us as this issue was going to press and will be reviewed in July. It covers the Cheer, the Koklass Pheasants, the genus *Phasianus*, etc. The treatment is uniform with that of the preceding volumes.

AT THE ANNUAL dinner of the Wilderness Club of Philadelphia on March 25 the members and guests enjoyed the first exhibition in America of the motion pictures of African Wild Animals and birds taken on the expedition of the Crown Prince of Sweden. The exhibition was made possible through the generosity of Mr. Frank A. Tichenor, owner of the films and the enterprise of the President of the Club, Mr. Alfred M. Collins. Among those present were many of the leading big game hunters of America, as well as Dr. E. W. Nelson, President of the American Association of Mammalogists and Dr. Witmer Stone, President of the American Ornithologists' Union. All united in the opinion that these are the most marvellous motion pictures of African animals, yet taken. From the ornithologists' standpoint the flocks of Oxpeckers feeding on the backs of Zebras, Rhinos, Wart-hogs, etc., the melee of Griffon Vultures, Adjutant Storks and Eagles tearing up a dead Zebra, and the flocks of sand grouse were intensely interesting, illustrating the actions of these species, as though the observer was but a few feet away. The closeup views of the giraffes, zebras and a feeding leopard were even more remarkable.